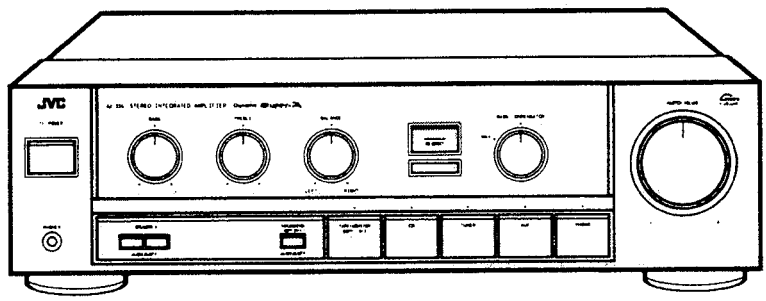
JVC

SERVICE MANUAL

STEREO INTEGRATED AMPLIFIER

MODEL No. AX-335TN



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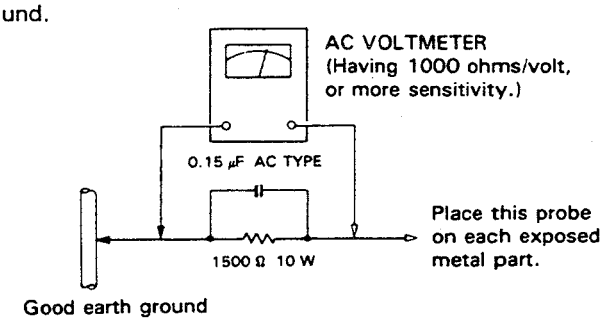
No. 20166
Feb. 1990

Safety Precautions

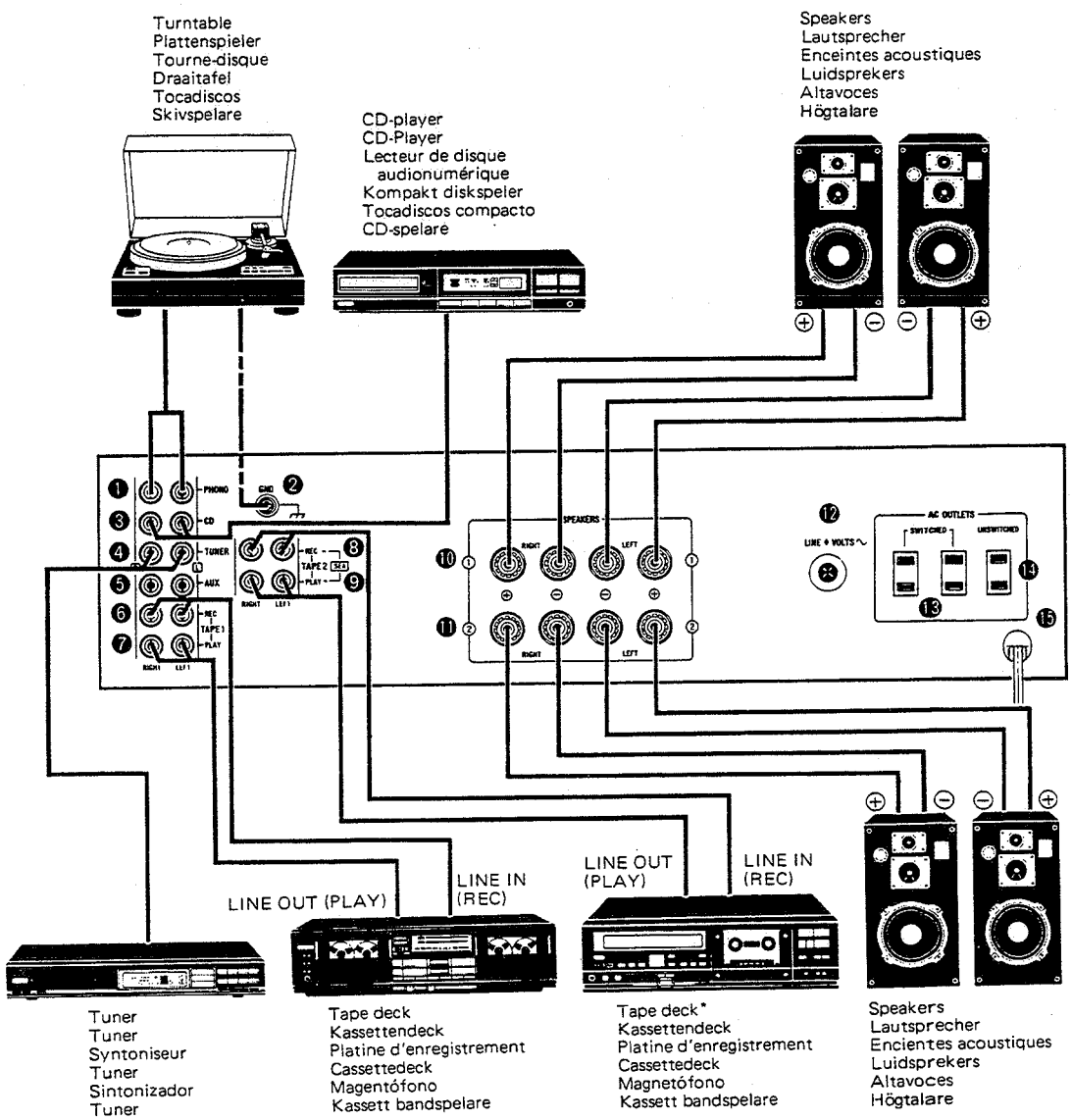
1. The design of this product contains special hardware and many circuits and components specially for safety purpose. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Service should be performed by qualified personnel only.
2. Alterations of the design or circuitry of the product should not be made. Any design alterations of the product should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting therefrom.
3. Many electrical and mechanical parts in the product have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the Parts List of Service Manual. Electrical components having such features are identified by shading on the schematics and by (⚠) on the Parts List in the Service Manual. The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement part shown in the Parts List of Service Manual may create shock, fire, or other hazards.
4. The leads in the products are routed and dressed with ties, clamps, tubings, barriers and the like to be separated from live parts, high temperature parts, moving parts and/or sharp edges for the prevention of electric shock and fire hazard. When service is required, the original lead routing and dress should be observed, and it should be confirmed that they have been returned to normal, after re-assembling.
5. Leakage current check (Electrical shock hazard testing)
   After re-assembling the product, always perform an isolation check on the exposed metal parts of the product (antenna terminals, knobs, metal cabinet, screw heads, headphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.
   Do not use a line isolation transformer during this check.
   - Plug the AC line cord directly into the AC outlet. Using a "Leakage Current Tester", measure the leakage current from each exposed metal part of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known good earth ground. Any leakage current must not exceed 0.5 mA AC (r.m.s.).
   - Alternate check method
     Plug the AC line cord directly into the AC outlet. Use an AC voltmeter having 1,000 ohms per volt or more sensitivity in the following manner. Connect a 1,500 Ω 10 W resistor paralleled by a 0.15 μF AC-type capacitor between an exposed metal part and a known good earth ground.
     Measure the AC voltage across the resistor with the AC voltmeter.
     Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and measure the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. Any voltage measured must not exceed 0.75 V AC (r.m.s.). This corresponds to 0.5 mA AC (r.m.s.).

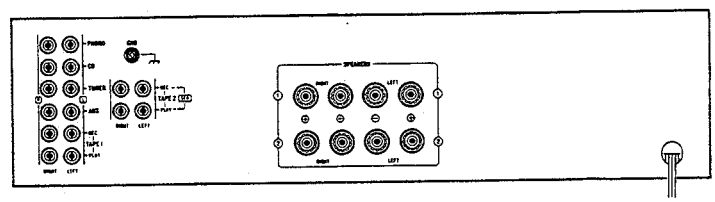

AC VOLTMETER
(Having 1000 ohms/volt, or more sensitivity.)
0.15 μF AC TYPE
1500 Ω 10 W
Place this probe on each exposed metal part.
Good earth ground

Warning

1. This equipment has been designed and manufactured to meet international safety standards.
2. It is the legal responsibility of the repairer to ensure that these safety standards are maintained.
3. Repairs must be made in accordance with the relevant safety standards.
4. It is essential that safety critical components are replaced by approved parts.
5. If mains voltage selector is provided, check setting for local voltage.

CONNECTION DIAGRAM
ANSCHLUSSDIAGRAMM
SCHEMA DE RACCORDEMENTS
AANSLUITINGSSCHEMA
DIAGRAMA DE CONEXIONES
ANSLUTNINGSSCHEMA





Provided on units for Continental Europe, the United Kingdom and Australia.
Vorhanden an Geräten für Kontinentaleuropa, Großbritannien und Australien.
Fourni sur les appareils pour l'Europe Continentale, le Royaume-Uni et l'Australie.
Aanwezig op apparaten voor het Europese Vasteland, Groot-Brittannië en Australië.
Se provee en las unidades para Europa Continental, el Reino Unido y Australia.
För kontinentala Europa, Storbritannien och Australien.

REAR PANEL

❶ PHONO terminals
❷ GND terminal
If your turntable has a ground lead, connect it to the GND terminal.
❸ CD terminals
❹ TUNER terminals
❺ AUX terminals
❻ TAPE 1 REC terminals
❼ TAPE 1 PLAY terminals
❽ TAPE 2 REC terminals*
❾ TAPE 2 PLAY terminals*
❿ SPEAKERS 1 terminals
⓫ SPEAKERS 2 terminals
⓬ AC line voltage selector (LINE ↓ VOLTS ∿)**
⓭ SWITCHED AC OUTLETS**
⓮ UNSWITCHED AC OUTLET**
⓯ Power cord

* The TAPE2 terminals of the AX-335TN or AX-435TN can be used for connecting the S.E.A. Graphic Equalizer.
** Not provided on units for Continental Europe, the United Kingdom and Australia.

Notes:

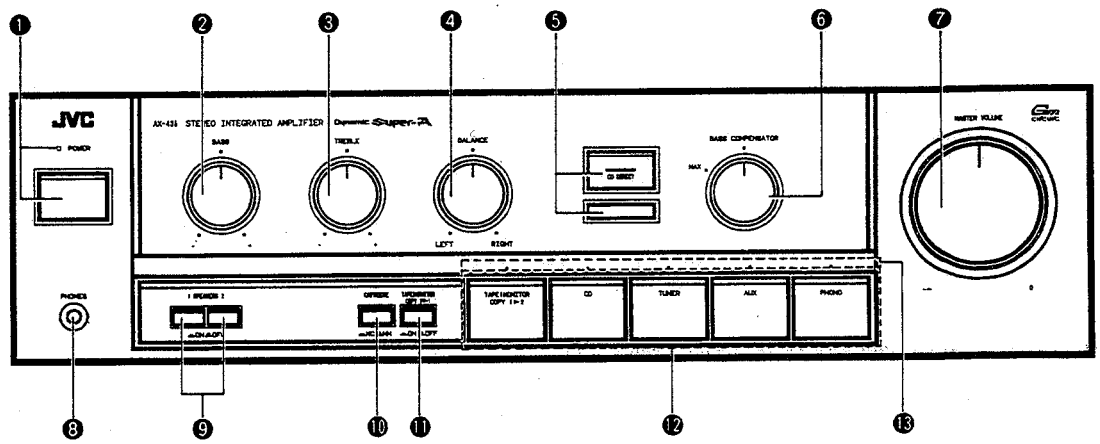
1. **Switch the power off when connecting any component.**
2. **Connect source components with left and right channels connected correctly. Reversed channels may degrade the stereo effect.**
3. **Connect speakers with correct polarity; (+) to (+) and (−) to (−). Reversed polarity may degrade the stereo effect.**
4. **Connect plugs or wires firmly. Poor contact may result in hum.**
5. **Do not connect equipment requiring more than the rated power to the AC outlets on the rear panel.**
6. **Use speakers with the correct impedance. The correct impedance is indicated on the rear panel of the AX-335TN/AX-435TN.**
7. **The SWITCHED AC outlets are switched off when the front-panel POWER button is switched off.**
8. **The UNSWITCHED AC outlet is not switched off when the front-panel POWER button is switched off.**
9. **An MC or MM cartridge can be used for the turntable connected to the AX-435TN. However, only an MM cartridge can be used for the turntable connected to the AX-335TN.**

RÜCKSEITE

❶ Plattenspie er-Anschlüsse (PHONO)
❷ Erdungsanschluß (GND)
Hier das Erdungskabel des Plattenspielers anschließen, falls voorhanden.
❸ CD-Anschlüsse
❹ Tuner-Anschlüsse (TUNER)
❺ AUX-Anschlüsse
❻ Tonband 1-Aufnahmeanschlüsse (TAPE 1 REC)
❼ Tonband 1-Wiedergabeanschlüsse (TAPE 1 PLAY)
❽ Tonband 2-Aufnahmeanschlüsse (TAPE 2 REC)*
❾ Tonband 2-Wiedergabeanschlüsse (TAPE 2 PLAY)*
❿ Lautsprecher-1-Anschlüsse (SPEAKER 1)
⓫ Lautsprecher 2-Anschlüsse (SPEAKERS 2)
⓬ Netzspannungswähler (LINE ↓ VOLTS ∿)**
⓭ Beschaltere Netzausgänge (SWITCHED AC OUTLETS)**
⓮ Unbeschalteter Netzausgang (UNSWITCHED AC OUTLET)**
⓯ Netzkabel.

* Die Kassette 2-Buchsen (TAPE 2) der Modelle AX-335TN oder AX-435TN können zum Anschließen des S.E.A. Graphic Equalizers verwendet werden.
** Nicht vorhanden an Geräten für Kontinental-Europe, Großbritannien und Australien.

FRONT PANEL
FRONTPLATTE
PANNEAU AVANT
VOORPANEEL
PANEL DELANTERO
FRAMPANEL



AX-435TN only
nur AX-435TN
AX-435TN seulement
alleen in AX-435TN
AX-435TN solamente
endast AX-435TN

FRONT PANEL

These instructions are prepared for two models: AX-335TN/AX-435TN.
Therefore, read the items below concerning each model.

❶ POWER and indicator
Press this button to turn the power on.
To turn the power off, press it again.
The indicator lights when the POWER button is pressed to on.

Notes:
- **When power is not supplied to this amplifier for 2 — 3 days, the source select button pressed before the power was switched off may be lost when the power is switched on again. If this happens, set the buttons, etc. again.**
- **An electronic source selector is used in this unit. When the POWER button is first switched on, two or more sources or no source may be selected. Make sure to input the source select data by pressing one of the source selectors.**
- **If the POWER button is pressed repeatedly to switch on and off too quickly, the same phenomenon as the above will occur.**

❷ BASS
Turn clockwise to boost bass response and counterclockwise to decrease it.

❸ TREBLE
Turn clockwise to boost treble response and counterclockwise to decrease it.

❹ BALANCE
Balances the volume between the left and right speakers. Usually set it to the center click position.

❺ CD DIRECT and indicator
Press this button to enjoy listening to the CD with good sound quality. The indicator lights and the signal fed from the CD terminals is directly connected to the volume, bypassing the circuits on the way, thus allowing you to enjoy listening to an improved sound quality.

Note:
- **While the CD DIRECT button is pressed, the reproduced sound does not change even if the source selector (including TAPE 2 MONITOR) and BALANCE volume are operated, press the CD DIRECT button again to turn the indicator off when using these.**

❻ BASS COMPENSATOR
When sound volume is turned down, the human ear tends to become less aware of bass sound. At low sound levels the BASS COMPENSATOR knob can be used to emphasize the bass sound. For ordinary use, the knob should be set to the normal position.

❼ MASTER VOLUME
Controls the volume of the speakers and headphones.

❽ PHONES (Headphones jack)
Plug stereo headphones into this jack for private listening.
If you want to listen to sound from the headphone only, press the SPEAKERS buttons to "OFF"

❾ SPEAKERS
Press to switch the speakers connected to the SPEAKERS 1 or 2 terminals on (▂) and off (▃).

❿ CARTRIDGE (AX-435TN only)
MC (▂): Press in when using an MC cartridge having an output of less than 0.5 mV.
MM (▃): Press again when using an MM or MC cartridge having an output of more than 0.5 mV.

⓫ TAPE 2 MONITOR
ON (▂): Set to this position to listen to the tape deck connected to the TAPE 2 terminals of this unit. If your tape deck is of the 3-head type, you can monitor the recorded sound while recording by setting this button to ON.
OFF (▃): Keep this button set to this position, except when you want to listen to the tape deck connected to the TAPE 2 terminals of this unit.

⓬ Source selector
TAPE 1 MONITOR
Press to listen to a tape deck connected to the TAPE 1 terminals.
CD
Press to listen to the source connected to the CD terminals.
TUNER
Press to listen to radio broadcasts by a tuner connected to the TUNER terminals.
AUX
Press to listen to the source connected to the AUX terminals.
PHONO
Press to listen to records played by a turntable connected to the PHONO terminals.

⓭ Source indicator
The indicator corresponding to the source select button pressed lights.

OPERATION

Before operation, always be sure to set VOLUME at minimum.
When the volume is increased after selecting a source position with no equipment connected to the input terminal, other connected devices (such as speakers) may be adversely affected by external noise and inductive hum.

Listening to CD

1. Connect a CD to the CD terminals on the rear panel.
2. Press the POWER button on.
3. Press the CD button and make sure that the TAPE 1 MONITOR and TAPE 2 MONITOR buttons are set to off.
4. Select the speaker system with the SPEAKERS switches.
5. Operate the CD according to its instruction manual.
6. Adjust the VOLUME, BALANCE and BASS/TREBLE/BASS COMPENSATOR controls.

Listening to broadcasts

1. Connect a tuner to the TUNER terminals on the rear panel.
2. Press the POWER button on.
3. Press the TUNER button and make sure that the TAPE 1 MONITOR and TAPE 2 MONITOR buttons are set to off.
4. Select the speaker system with the SPEAKERS switches.
5. Operate the tuner according to its instruction manual.
6. Adjust the VOLUME, BALANCE and BASS/TREBLE/BASS COMPENSATOR controls.

Listening to records

1. Connect a turntable to the PHONO terminals on the rear panel.
2. Press the POWER button on.
3. Set the CARTRIDGE ● button of this unit according to the cartridge in use. (AX-435TN only)
4. Press the PHONO button and make sure that the TAPE 1 MONITOR and TAPE 2 MONITOR buttons are set to off.
5. Select the speaker system with the SPEAKERS switches.
6. Operate the turntable according to its instruction manual.
7. Adjust the VOLUME, BALANCE and BASS/TREBLE/BASS COMPENSATOR controls.

Listening to tapes

1. Connect a tape deck to the PLAY terminals of TAPE 1 or TAPE 2.
2. Press the POWER button on.
3. Press the TAPE 1 MONITOR button to play back the TAPE 1 deck. For playback of the TAPE 2 deck, press the TAPE 2 MONITOR button to ON (▂).
4. Select the speaker system with the SPEAKERS switches.
5. Operate the tape deck for playback according to its instruction manual.
6. Adjust the playback sound controls as required.

Note:

- **Do not place the tape deck directly on the amplifier, because it may cause the amplifier to malfunction.**

Using stereo headphones

Stereo headphones can be plugged into the front panel jack. Plugging headphones into the PHONES jack does not switch off the speaker sound.

Recording tapes

1. Connect a tape deck to the REC terminals of the TAPE 1 or TAPE 2 terminals.
2. Press the POWER button on.
3. Select a speaker system if you wish to hear the sound while recording.
4. Press the SOURCE SELECTOR button for the source you want to play.
5. Play the source.
6. Operate the tape deck for recording.

Note:

- **A CD can be played while recording another source .**
  The CD DIRECT feature allows you to play a CD while recording another source. If you want to listen to any source other than the CD, press ther CD DIRECT button again to cancel the CD DIRECT feature.

Tape dubbing

Dubbing from the TAPE 1 to TAPE 2 is carried out as follows:

1. Press the TAPE 1 MONITOR button.
2. Play back the TAPE 1 deck.
3. Operate the TAPE 2 deck for recording.

You can perform tape dubbing while listening to the CD by pressing the CD DIRECT button in addition to the above operations.

Notes:

- **The sound you hear from the speakers or headphones is the source sound, not that being recorded on the tape.**
- **You can also perform tape dubbing from TAPE 2 to TAPE 1 by substituting TAPE 2 for TAPE 1 and TAPE 1 for TAPE 2 same as the above operation.**
- **The VOLUME control of this amplifier has no effect on the recording level. Adjust the recording level with the controls on the tape deck.**

How to operate the monitor while recording on the tape deck

1. Connect a 3-head tape deck to the TAPE 1 or TAPE 2 terminals.
2. Make sure to connect the signal cords to the PLAY and REC terminals.
3. Select the source from which you want to record by depressing the source select button on this unit.
4. Operate the tape deck for recording as described in its operating manual.
5. By playing the source component, you can record on the tape deck.
6. While recording on the tape deck, the recorded sound can be heard by depressing the TAPE 1 MONITOR or TAPE 2 MONITOR button on this unit.

Use of S.E.A. Graphic Equalizer

By allowing you to independently boost or lower the response of finely divided sections of the frequency spectrum: the S.E.A. gives you much greater control over the sound quality of your stereo system. With an optionally available S.E.A. Graphic Equalizer, you can tailor the sound to your own taste for different types of music or to compensate for the particular acoustic characteristics of your audio components and listening room. The TAPE 2 terminals of the AX-335TN or AX-435TN can be used for connecting the S.E.A. Graphic Equalizer.

Note:

- **Even if the S.E.A. Graphic Equalizer is operated while the CD DIRECT button is pressed, reproduced sound is neither adjusted nor compensated. When using the S.E.A. Graphic Equalizer, press the CD DIRECT button once again to turn the indicator off.**

TROUBLESHOOTING

What appears to be a malfunction may not always be serious.
Make sure first . . . .

No sound and no light
Is the AC plug connected properly?
Are the connections made correctly?
Are the inter-component connections correct?
No sound from speakers
Are speaker cords connected?
Are the SPEAKERS buttons correctly set?
Is the VOLUME control properly set?
Is your source component correctly set?
Check that TAPE 2 MONITOR is not on.
Sound from one speaker only
Are speaker cords connected correctly?
Is BALANCE control set to one extreme or the other?
Loud hum during record playing
Is turntable grounded?
Try to change cord path.
Insert the plugs by interchanging their positions.
Howling noise during record playing
Is turntable too close to a speaker?

STÖRUNGSSUCHE

Die meisten Betriebsstörungen sind auf einfache Ursachen zurückzuführen.
Überprüfen Sie deshalb noch einmal . . . .

Kein Ton und keine Anzeige
Ist der Netzstecker richtig eingesteckt?
Wurden alle Anschlüsse richtig vorgenommen?
Sind die Verbindungen zwischen den Geräten richtig hergestellt?
Kein Ton von beiden Lautsprechern
Sind die Lautsprecherkabel angeschlossen?
Sind die Lautsprecher-Tasten (SPEAKERS) korrekt eingestellt?
Ist die Lautstärke (VOLUME) korrekt eingestellt?
Ist die Signalquelle richtig eingestellt?
Sicherstellen, daß die Taste TAPE 2 MONITOR nicht in Ein-Stellung steht.
Ton kommt nur von einem Lautsprecher
Sind die Lautsprecherkabel richtig angeschlossen?
Ist der Balanceregler (BALANCE) zu weit nach rechts oder zu weit nach links gedreht?
Lautes Brummgeräusch beim Abspielen einer Schallplatte
Ist der Plattenspieler geerdet?
Evtl. die Kabel anders verlegen.
Die Stecker vertauscht einstecken.
Rückkopplung beim Abspielen einer Schallplatte
Steht der Plattenspieler zu nahe am Lautsprecher?

EN CAS DE DIFFICULTE

Ce qui semble au départ être un mauvais fonctionnement n'est pas toujours très sérieux.
Assurez-vous d'abord que . . . .

Aucun son et pas d'eclairement
La prise CA est-elle correctement branchée?
Les raccordements sont-ils bien faits?
Les connexions entre les divers composants sont-elles correctes?
Pas de son des haut-parleurs
Les câbles des haut-parleurs sont-ils raccordés?
Les sélecteurs SPEAKERS sont-ils réglés correctement?
La commande VOLUME est-elle réglée correctement?
Vos appareils de source sont-ils correctement installés?
Vérifier que TAPE 2 MONITOR n'est pas réglé sur ON.
Le son ne provient que d'un seul haut-parleur
Les câbles de haut-parleurs sont-ils raccordés correctement?
La commande BALANCE est-elle tournée à fond dans un sens ou dans l'autre?
Bourdonnement sourd pendant la lecture de disques
La platine est-elle mise à la terre?
Essayer de changer l'emplacement du cordon.
Insérer les fiches en interchangeant leur position.
Hurlement pendant la lecture de disques
La platine tourne-disque est-elle trop près des haut-parleurs?

SPECIFICATIONS

AX-335TN

OVERALL CHARACTERISTICS

Output power:

85 watts per channel into 4 ohms at 1 kHz (DIN).

65 watts per channel into 8 ohms at 1 kHz (DIN).

55 watts per channel, min. RMS, both channels driven, into 8 ohms from 30 Hz to 20 kHz, with no more than 0.007% total harmonic distortion.

55 watts per channel, min. RMS, both channels driven, into 8 ohms at 1 kHz with no more than 0.003% total harmonic distortion. (measured by JVC Audio Analyzer System)

Total harmonic distortion	: 0.007% (30 Hz — 20 kHz, 8 ohms) at 55 watts
Intermodulation distortion	: 0.007% (60 Hz : 7 kHz = 4 : 1, 8 ohms) at 55 watts
Power band width	: 5 Hz — 50 kHz (IHF, 0.05%, 8 ohms both channels driven)
Frequency response	: 5 Hz — 80 kHz +0, −3 dB (8 ohms)
Damping factor	: 90 (1 kHz, 8 ohms)
Input terminals	
Input sensitivity/ impedance (1 kHz)	
PHONO	: 2.5 mV/47 kohms
CD/AUX/ TUNER/TAPE 1, 2	: 210 mV/35 kohms
Signal-to-noise ratio	
PHONO	: 71 dB ('66 IHF)
CD/AUX/ TUNER/TAPE 1, 2	: 104 dB ('66 IHF)
PHONO	: 67 dB (DIN)
CD/AUX/ TUNER/TAPE 1, 2	: 68 dB (DIN)
Tone controls	: TREBLE: +8 ±1 dB, −8 ±1 dB (at 10 kHz)
	BASS: +8 ±1 dB, −8 ±1 dB (at 100 Hz)
BASS COMPENSATOR (Volume control at −30 dB position)	: +5 dB (at 100 Hz), +8 dB (at 60 Hz)

AX-435TN

OVERALL CHARACTERISTICS

Output power:

105 watts per channel into 4 ohms at 1 kHz (DIN).

75 watts per channel into 8 ohms at 1 kHz (DIN).

65 watts per channel, min. RMS, both channels driven, into 8 ohms from 20 Hz to 20 kHz, with no more than 0.007% total harmonic distortion.

65 watts per channel, min. RMS, both channels driven, into 8 ohms at 1 kHz with no more than 0.003% total harmonic distortion. (measured by JVC Audio Analyzer System)

Total harmonic distortion	: 0.007% (20 Hz — 20 kHz, 8 ohms) at 65 watts
Intermodulation distortion	: 0.007% (60 Hz : 7 kHz = 4 : 1, 8 ohms) at 65 watts
Power band width	: 5 Hz — 50 kHz (IHF, 0.05%, 8 ohms both channels driven)
Frequency response	: 5 Hz — 80 kHz +0, −3 dB (8 ohms)
Damping factor	: 90 (1 kHz, 8 ohms)
Input terminals	
Input sensitivity/ impedance (1 kHz)	
PHONO (MM)	: 2.5 mV/47 kohms
PHONO (MC)	: 210 µV/100 ohms
CD/AUX/ TUNER/TAPE 1, 2	: 210 mV/35 kohms
Signal-to-noise ratio	
PHONO (MM)	: 85 dB ('66 IHF)
PHONO (MC)	: 66 dB ('66 IHF)
CD/AUX/ TUNER/TAPE 1, 2	: 104 dB ('66 IHF)
PHONO (MM)	: 67 dB (DIN)
CD/AUX/ TUNER/TAPE 1, 2	: 68 dB (DIN)
Tone controls	: TREBLE: +8 ±1 dB, −8 ±1 dB (at 10 kHz)
	BASS: +8 ±1 dB, −8 ±1 dB (at 100 Hz)
BASS COMPENSATOR (Volume control at −30 dB position)	: +5 dB (at 100 Hz), +8 dB (at 60 Hz)

EQUALIZER

PHONO overload capacity	95 mV (0.02% THD)
PHONO.RIAA deviation	±0.5 dB (20 Hz — 20 kHz)
Recording output Output level/ impedance TAPE REC-1, 2	: 210 mV/Maximum 2 kohms

GENERAL

Dimensions	: 435 (W) x 127 (H) x 310 (D) mm (17-3/16" x 4-15/16" x 12-1/16")
Weight	: 7.2 kg (15.9 lbs.)

Design and specifications subject to change without notice.

EQUALIZER

PHONO overload capacity	
PHONO (MM)	: 100 mV (0.02% THD)
PHONO (MC)	: 8 mV (0.04% THD)
PHONO RIAA deviation	
PHONO (MM)	: ±0.3 dB (20 Hz — 20 kHz)
PHONO (MC)	: ±0.5 dB (20 Hz — 20 kHz)
Recording output Output level/ impedance TAPE REC-1, 2	: 210 mV/Maximum 2 kohms

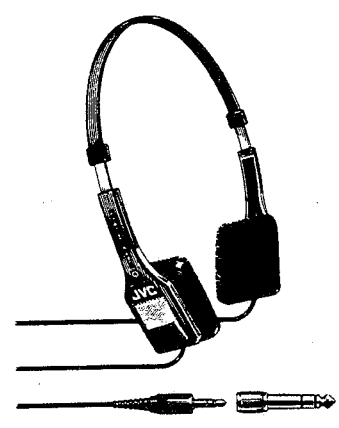
GENERAL

Dimensions	: 435 (W) x 127 (H) x 310 (D) mm (17-3/16" x 4-15/16" x 12-1/16")
Weight	: 7.5 kg (16.5 lbs.)

Design and specifications subject to change without notice.

POWER SPECIFICATIONS

Areas	Line voltage & frequency	Power consumption	
		AX-335TN	AX-435TN
Continental Europe	AC 220 V~, 50 Hz	230 watts	250 watts
U.K.	AC 240 V~, 50 Hz	520 watts	610 watts
Australia			
Other areas	AC 110/127/220/240 V~ selectable, 50/60 Hz	240 watts	270 watts



OPEN-AIR STEREO HEADPHONES HA-CD7
The JVC HA-CD7 Open-Air high-quality Stereo Headphones (optionally available) are recommended for use with this unit.

Removal Procedures

■ **Removing the metal cover**

1. Remove the 4 screws on both sides.
2. Remove the 2 screws located on the top of rear panel.
3. Slightly open both sides of the metal cover, to the left and right, and raise the rear side. Then slowly lift it up and straight backward.

■ **Removing the bottom plate**

1. Remove the metal cover.
2. Remove the 18 screws (Ⓐ). See Fig.1.

* When installing the bottom plate, properly insert the protect cover between the power transformer and the AC primary PC board. See Fig. 3.

■ **Removing the front panel**

1. Remove the metal cover.
2. Remove the 3 screws (Ⓑ) and 2 plastic rivets (Ⓒ). See Fig-1 & Fig-2.
3. Pull out the main volume knob.

■ **Removing the power transistors**

1. Remove the metal cover and the bottom plate.
2. Unsolder the defective power transistor.
3. Remove the screw holding the power transistor using a pair of pliers, a wrench or a bent screwdriver.

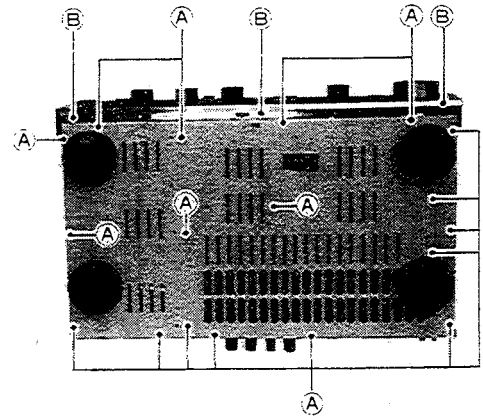


Fig. 1

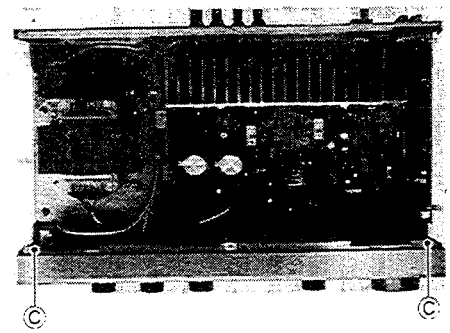


Fig. 2

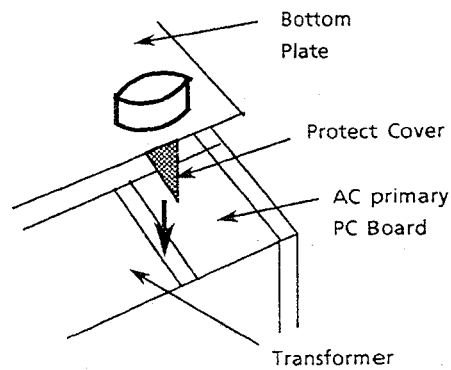
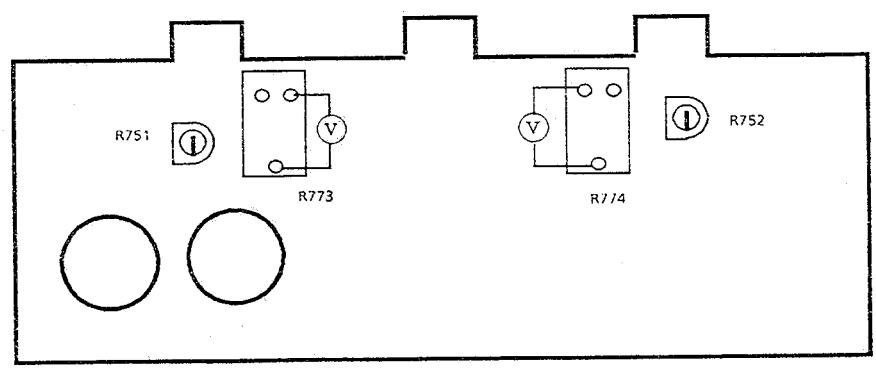


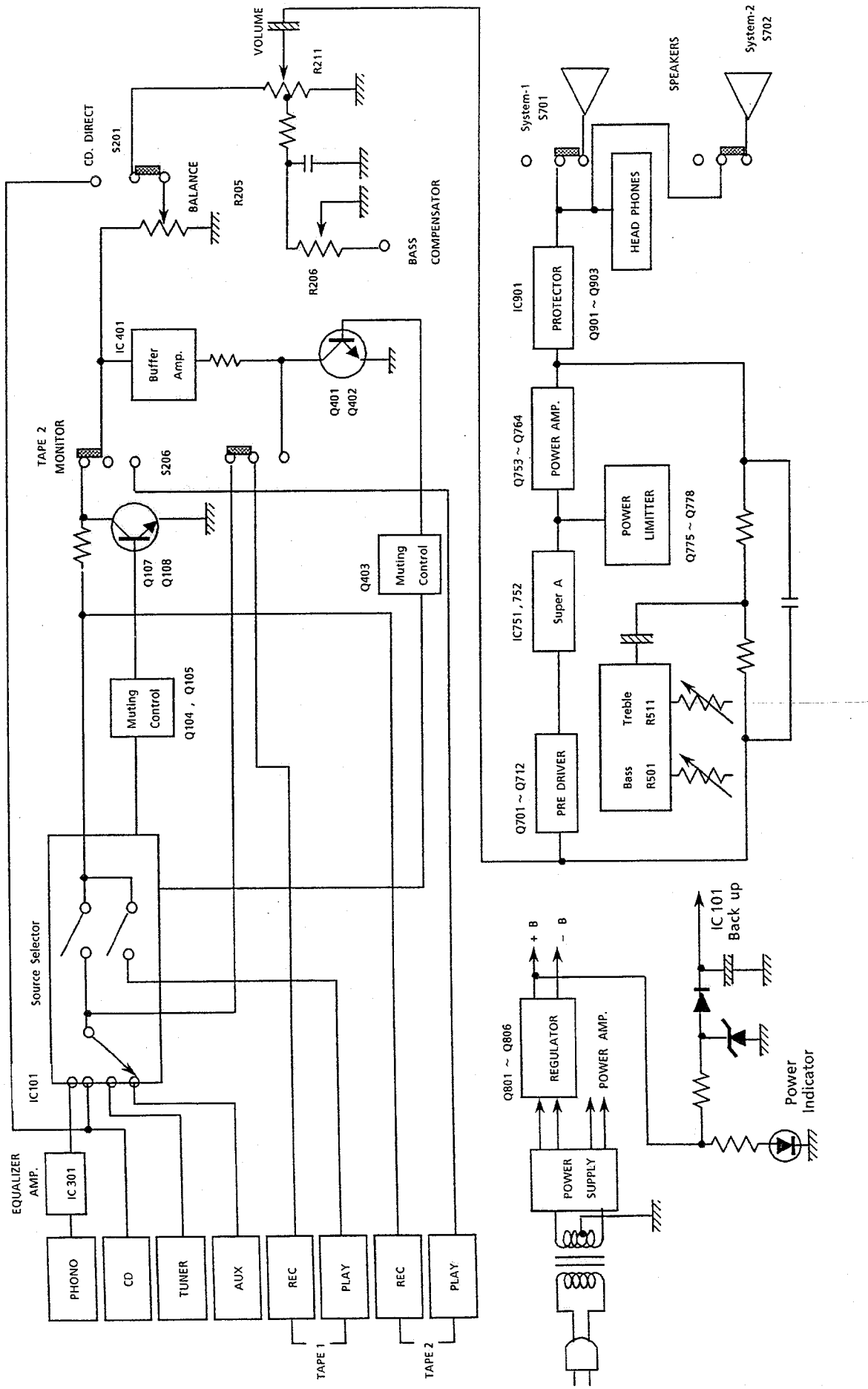
Fig. 3

Idling Adjustment



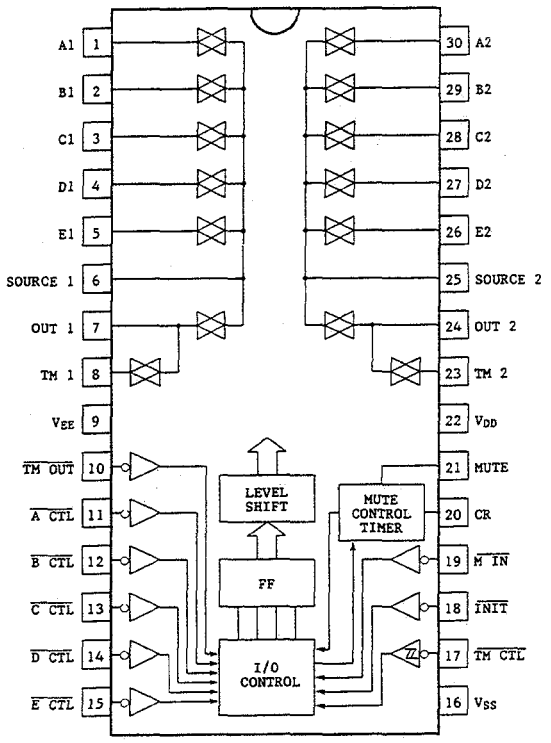
1. Turn R751 and R752 fully counterclockwise before the power switch on.
2. Warm up at least 5 minutes before adjustment.
3. Must keep the heatsink to prevent overheating before adjustment.
4. Set the volume control to minimum during this adjustment.
5. Connect a DC voltmeter to R773 resistor's leads for left channel, or to R774 for right channel.
6. Adjust R751 for left channel, or R752 for right channel, so that the DC voltmeter becomes 7mV ~ 13mV.

Block Diagram

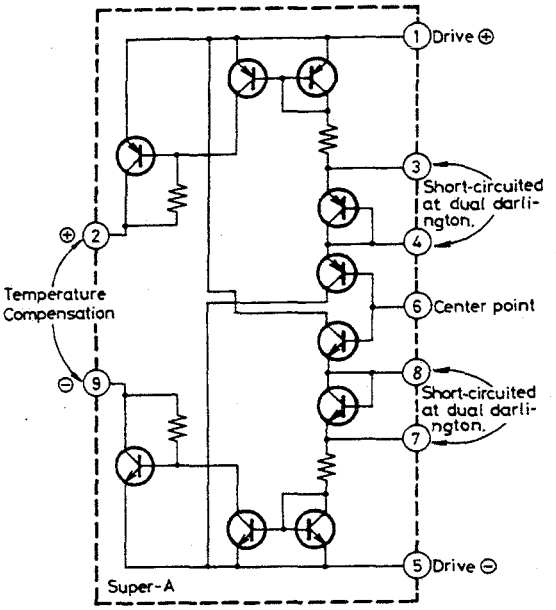


Internal Block Diagrams of ICs

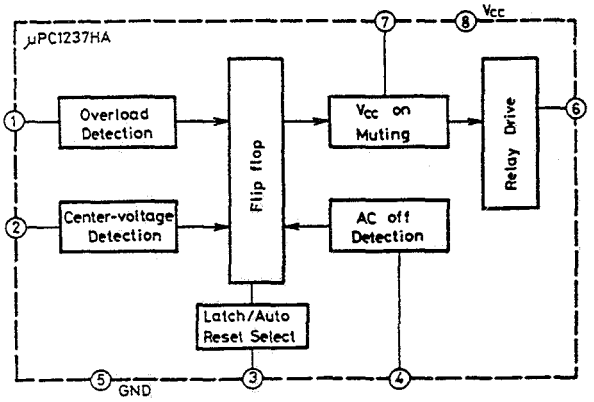
■ LC7818 (IC101): Analog Switch



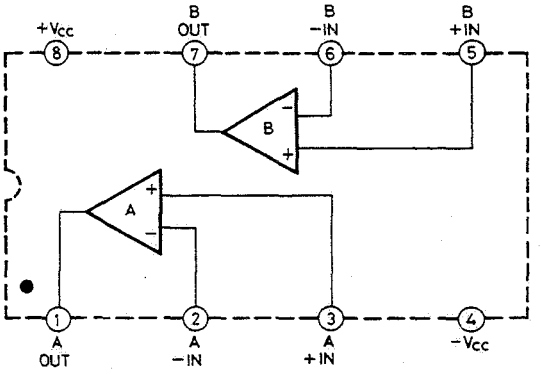
■ VC5022 [X, Y] (IC751, IC752): Super-A



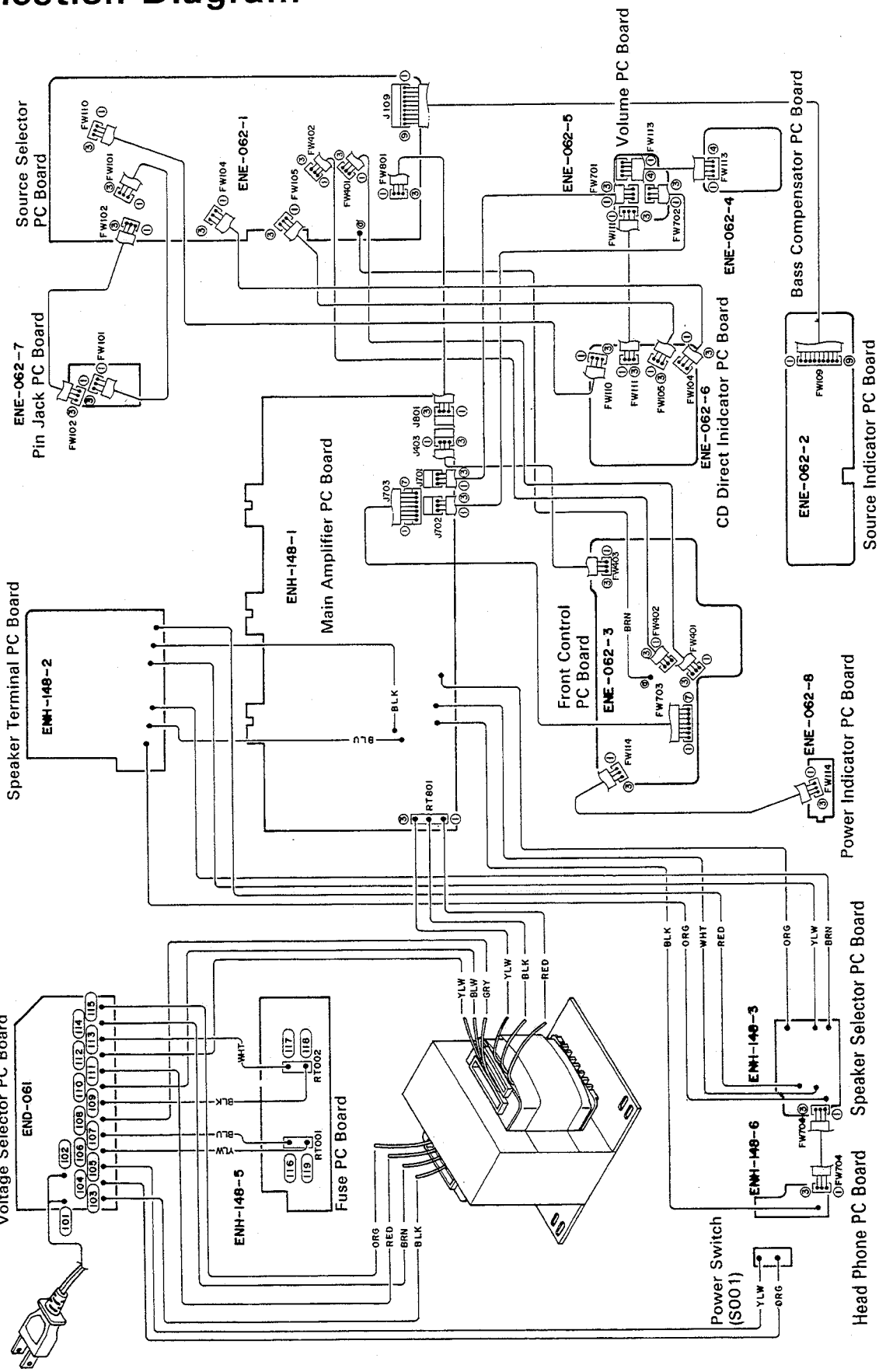
■ μPC1237HA (IC901): Relay Driver



■ NJM4558D-D (IC301): Dual OP Amp.



Connection Diagram



– MEMO –

– MEMO –

PARTS LIST

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■ END-061 [B] Voltage Selector PC Board Ass'y 2-11
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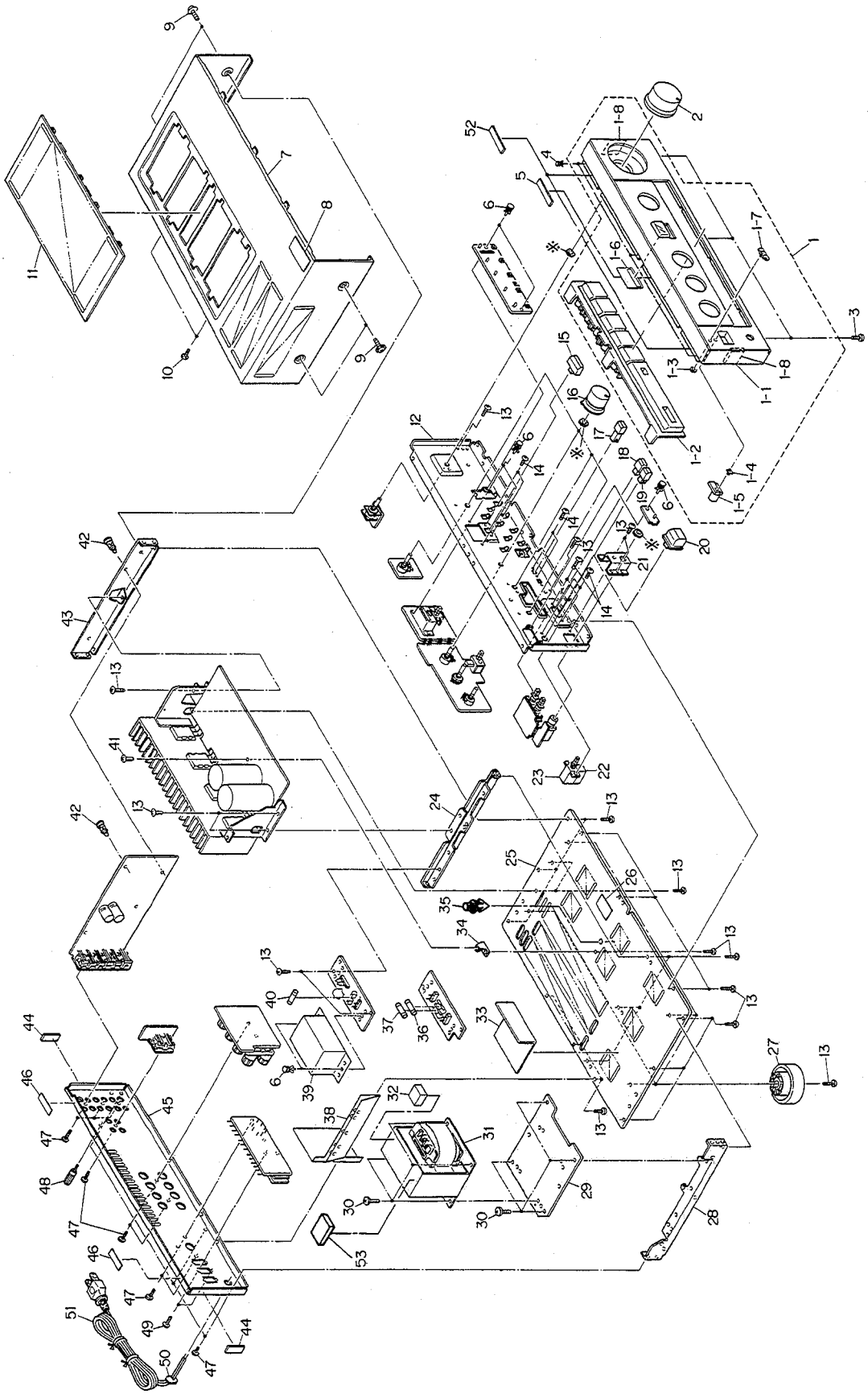
General Exploded View and Parts List



* mark indicates attached part.

■ Parts List

⚠	Item	Part Number	Part Name	Q'ty	Description	Areas
	1	EFP-AX335TNE	Front Panel Ass'y	1		
	1-1	E26391-003	Front Panel	1		
	1-2	E26332-010	Push Button Ass'y	1		
	1-3	E60912-003	Speed Nut	1		
	1-4	E73522-001	Indicator	1		
	1-5	E75286-001	Holder	1		
	1-6	E75327-001	Indicator Sheet	1		
	1-7	E72968-001	JVC Mark	1		
	1-8	EXO020010R15S13	Spacer	2		
	2	E305980-002	Volume Knob	1		
	3	SBSG3006M	Screw	3		
	4	E48729-009	Plastic Rivet	2		
	5	EXO060007N40S	Spacer	1		
	6	E48729-008	Plastic Rivet	7		Except U
		E48729-008	Plastic Rivet	5		U
	7	E26336-003	Metal Cover	1		A,G
		E26336-004	Metal Cover	1		E,EF,BS,U
	8	E67000-005	Caution Label	1		
	9	E61660-004	Special Screw	4		
	10	SBSG3008M	Screw	2		
	11	E24134-008	Grill	1		E,EF,BS,U
	12	E11953-001	Front Bracket	1		
	13	SBSG3008CC	Screw	33		
	14	SBST3006CC	Screw	8		
	15	E75117-002	Push Button	1	CD DIRECT	
	16	E305981-004	Tone Knob	4	TONE	
	17	E75182-002	Push Button	1	TAPE	
	18	E75073-005	Push Button	1	SPK-2	
	19	E75073-004	Push Button	1	SPK-1	
	20	E75079-006	Power Button	1	POWER	
	21	E75183-001	Headphone Bracket	1		
⚠	22	QSP1106-004	Push Switch	1		Except BS
⚠		QSP4C11-E03BS	Push Switch	1		BS
	23	E71004-001	Switch Cover	1		
	24	E305812-002	Center Bracket	1		
	25	E26273-002	Bottom Cover	1		
	26	E70115-002	Caution Label	1		BS
	27	E75088-015	Foot Ass'y	4		
	28	E305810-001	Side Bracket	1	Left	
	29	E305803-002	Trans Bracket	1		
	30	E65389-004	Special Screw	8		
⚠	31	ETP1100-32FA	Power Transformer	1	T001	U
⚠		ETP1100-32EA	Power Transformer	1	T001	Except U,BS
⚠		ETP1100-32EABS	Power Transformer	1	T001	BS
	32	E75413-001	Spacer	1		G
	33	E75353-001	Protect Cover	1		Except U
	34	E68587-008	Bracket	1		
	35	E306816-001	Fastener	1		
⚠	36	QMF51A2-4R0S	Fuse	1	F002	U
	—	E67132-T4R0	Fuse Label	1	F002	U
⚠	37	QMF51A2-2R0S	Fuse	1	F001	U
	—	E67132-T2R0	Fuse Label	1	F001,F003	
	38	E305986-001	Protect Cover	1		
	39	E306171-001	Protect Cover	1		Except U
⚠	40	QMF51A2-2R0S	Fuse	1	F003	Except U,BS
⚠		QMF51E2-2R0SBS	Fuse	1	F003	BS
	41	GBSG3008CC	Screw	1		
	42	E303216-006	Fastener	2		
	43	E305811-001	Side Bracket	1	Right	
	44	EXO020010R10S10	Felt Spacer	2		

⚠	Item	Part Number	Part Name	Q'ty	Description	Areas
	45	E26334-005	Rear Panel	1		U
		E26334-006	Rear Panel	1		Except U
	—	E303260-209	Rating Label	1		E,EF,G
	46	EXO050010N20S	Felt Spacer	2		G
	47	E73273-003	Special Screw	9		Except U
		E73273-003	Special Screw	11		U
	48	E70078-001	GND Terminal	1		
	49	SDSG3008CC	Screw	2		U
⚠	50	QHS3876-162	Cord Stopper	1		Except BS
⚠		QHS3876-162BS	Cord Stopper	1		BS
⚠	51	QMP2560-244	Power Cord	1		A
⚠		QMP3900-200	Power Cord	1		E,EF,G
⚠		QMP7520-200	Power Cord	1		U
⚠		QMP9017-008BS	Power Cord	1		BS
	52	EXO030007N50S	Spacer	2		
	53	EXO050050N30S02	Spacer	1		
	—	E61029-005	Number Label	1		A,U,BS
	—	E70028-001	Approval Label	1		E
	—	E60965-001BS	Warning Label	1		BS
	—	E74792-060	FTZ Label	1		G

⚠ Safety Parts

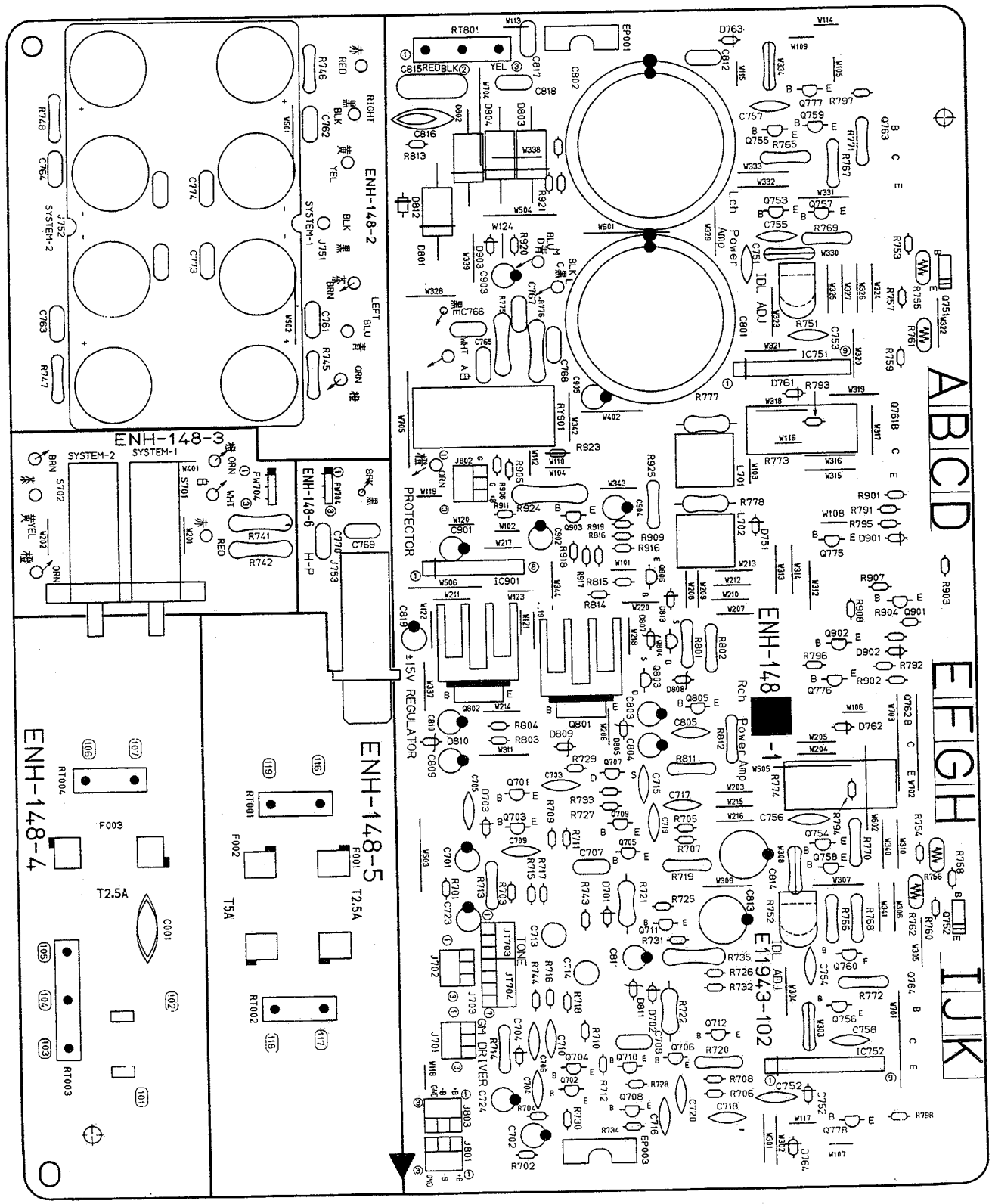
The Marks for Designated Areas

A·····Australia
E,EF·····Continental Europe
BS·····the U.K.
G·····West Germany
U·····Other Countries
No mark indicates all areas.

Printed Circuit Board Ass'y and Parts List

■ENH-148 □ Main Amplifier PC Board Ass'y

Note : ENH-148 □ varies according to the areas employed. See note (1) when placing an order.



Note (1)

PC Board Ass'y	Designated Areas
ENH-148 [A]	Other Countries
ENH-148 [B]	Australia,Continental Europe
ENH-148 [C]	West Germany
ENH-148 [D]BS	the U.K.

Transistors

△	ITEM	PART NUMBER	DESCRIPTION		AREA
	Q701	2SC2240(A,B)	SILICON	TOSHIBA	
	Q702	2SC2240(A,B)	SILICON	TOSHIBA	
	Q703	2SC2240(A,B)	SILICON	TOSHIBA	
	Q704	2SC2240(A,B)	SILICON	TOSHIBA	
	Q705	2SA970(GR,BL)	SILICON	TOSHIBA	
	Q706	2SA970(GR,BL)	SILICON	TOSHIBA	
	Q707	2SA970(GR,BL)	SILICON	TOSHIBA	
	Q708	2SA970(GR,BL)	SILICON	TOSHIBA	
	Q709	2SA933LN(R,S)	SILICON	ROHM	
	Q710	2SA933LN(R,S)	SILICON	ROHM	
	Q711	2SC2240(GR,BL)	SILICON	TOSHIBA	
	Q712	2SC2240(GR,BL)	SILICON	TOSHIBA	
	Q751	2SD636(Q,R)	SILICON	MATSUSHITA	
	Q752	2SD636(Q,R)	SILICON	MATSUSHITA	
	Q753	2SC2240(GR)	SILICON	TOSHIBA	
	Q754	2SC2240(GR)	SILICON	TOSHIBA	
	Q755	2SA970(GR)	SILICON	TOSHIBA	
	Q756	2SA970(GR)	SILICON	TOSHIBA	
	Q757	2SC2235(O,Y)	SILICON	TOSHIBA	
	Q758	2SC2235(O,Y)	SILICON	TOSHIBA	
	Q759	2SA965(O,Y)	SILICON	TOSHIBA	
	Q760	2SA965(O,Y)	SILICON	TOSHIBA	
	Q761	2SD2155LB(R,O)	SILICON	TOSHIBA	
	Q762	2SD2155LB(R,O)	SILICON	TOSHIBA	
	Q763	2SB1429LB(R,O)	SILICON	TOSHIBA	
	Q764	2SB1429LB(R,O)	SILICON	TOSHIBA	
	Q775	2SC1740S(R,S)	SILICON	ROHM	
	Q776	2SC1740S(R,S)	SILICON	ROHM	
	Q777	2SA933S(R,S)	SILICON	ROHM	
	Q778	2SA933S(R,S)	SILICON	ROHM	
	Q801	2SD2061(E,F)	SILICON	ROHM	
	Q802	2SB1187(E,F)	SILICON	ROHM	
	Q803	2SK246(GR)	F.E.T	TOSHIBA	
	Q804	2SK246(GR)	F.E.T	TOSHIBA	
	Q805	2SA933S(R,S)	SILICON	ROHM	
	Q806	2SC3068	SILICON	SANYO	
	Q901	2SC2389(S,E)	SILICON	ROHM	
	Q902	2SC2389(S,E)	SILICON	ROHM	
	Q903	2SA564A(R,S)	SILICON	MATSUSHITA	

I. C. S.

△	ITEM	PART NUMBER	DESCRIPTION		AREA
	IC751	VC5022(X,Y)	I.C.	ROHM	
	IC752	VC5022(X,Y)	I.C.	ROHM	
	IC901	UPC1237HA	I.C.	NEC	

Diodes

△	ITEM	PART NUMBER	DESCRIPTION		AREA
	D701	1SS133	SILICON	ROHM	
	D702	1SS133	SILICON	ROHM	
	D703	1SS133	SILICON	ROHM	
	D704	1SS133	SILICON	ROHM	
	D751	1SS133	SILICON	ROHM	
	D752	1SS133	SILICON	ROHM	
	D761	1SS133	SILICON	ROHM	
	D762	1SS133	SILICON	ROHM	
	D763	1SS133	SILICON	ROHM	
	D764	1SS133	SILICON	ROHM	
△	D801	30D2FC	SILICON	NIHONINTER	A
△	D801	30D2FC	SILICON	NIHONINTER	B
△	D801	30DL2FC	SILICON	NIHONINTER	C
△	D801	30D2FC	SILICON	NIHONINTER	DBS
△	D802	30D2FC	SILICON	NIHONINTER	A
△	D802	30D2FC	SILICON	NIHONINTER	B
△	D802	30DL2FC	SILICON	NIHONINTER	C
△	D802	30D2FC	SILICON	NIHONINTER	DBS
△	D803	30D2FC	SILICON	NIHONINTER	A
△	D803	30D2FC	SILICON	NIHONINTER	B

Diodes

△	ITEM	PART NUMBER	DESCRIPTION		AREA
△	D803	30DL2FC	SILICON	NIHONINTER	C
△	D803	30D2FC	SILICON	NIHONINTER	DBS
△	D804	30D2FC	SILICON	NIHONINTER	A
△	D804	30D2FC	SILICON	NIHONINTER	B
△	D804	30DL2FC	SILICON	NIHONINTER	C
△	D804	30D2FC	SILICON	NIHONINTER	DBS
	D805	MTZ15JC	ZENER	ROHM	
	D807	MTZ13JC	ZENER	ROHM	
	D808	MTZ13JC	ZENER	ROHM	
	D809	MTZ18JC	ZENER	ROHM	
	D810	MTZ18JC	ZENER	ROHM	
	D811	MTZ18JC	ZENER	ROHM	
△	D812	ERA15-02L19	SILICON	KYOUDOU	
	D813	1SS133	SILICON	ROHM	
	D901	1SS133	SILICON	ROHM	
	D902	1SS133	SILICON	ROHM	
	D903	1SS133	SILICON	ROHM	

Capacitors

△	ITEM	PART NUMBER	DESCRIPTION			AREA
△	C001	QCZ9019-472	4700PF		CERAMIC	B
△	C001	QCZ9019-472	4700PF		CERAMIC	C
△	C001	QCZ9019-472BS	4700PF		CERAMIC	DBS
	C701	EETB2AM-106	10MF	100V	ELECTRO	
	C702	EETB2AM-106	10MF	100V	ELECTRO	
	C703	QCS21HJ-101	100PF	50V	CERAMIC	
	C704	QCS21HJ-101	100PF	50V	CERAMIC	
	C705	QCS21HJ-101	100PF	50V	CERAMIC	
	C706	QCS21HJ-101	100PF	50V	CERAMIC	
	C707	QFN81HK-332	3300PF	50V	MYLAR	
	C708	QFN81HK-332	3300PF	50V	MYLAR	
	C709	QCS21HJ-100	10PF	50V	CERAMIC	
	C710	QCS21HJ-100	10PF	50V	CERAMIC	
	C713	QEN51HM-475	4.7MF	50V	NON POLE	
	C714	QEN51HM-475	4.7MF	50V	NON POLE	
	C715	QCS21HJ-330	33PF	50V	CERAMIC	
	C716	QCS21HJ-330	33PF	50V	CERAMIC	
	C717	QCS21HJ-330	33PF	50V	CERAMIC	
	C718	QCS21HJ-330	33PF	50V	CERAMIC	
	C719	QCS22HJ-220	22PF	500V	CERAMIC	
	C720	QCS22HJ-220	22PF	500V	CERAMIC	
	C723	QETB1CM-476	47MF	16V	ELECTRO	
	C724	QETB1CM-476	47MF	16V	ELECTRO	
	C751	QCF21HP-103	0.01MF	50V	CERAMIC	
	C752	QCF21HP-103	0.01MF	50V	CERAMIC	
	C753	QCF21HP-103	0.01MF	50V	CERAMIC	
	C754	QCF21HP-103	0.01MF	50V	CERAMIC	
	C755	QCS22HJ-680A	68PF	500V	CERAMIC	
	C756	QCS22HJ-680A	68PF	500V	CERAMIC	
	C757	QCS22HJ-680A	68PF	500V	CERAMIC	
	C758	QCS22HJ-680A	68PF	500V	CERAMIC	
	C761	QFN81HK-223	0.022MF	50V	MYLAR	C
	C762	QFN81HK-223	0.022MF	50V	MYLAR	C
	C763	QFN81HK-223	0.022MF	50V	MYLAR	C
	C764	QFN81HK-223	0.022MF	50V	MYLAR	C
	C765	QFN81HK-104	0.1MF	50V	MYLAR	
	C766	QFN81HK-104	0.1MF	50V	MYLAR	
	C767	QFN81HK-104	0.1MF	50V	MYLAR	
	C768	QFN81HK-104	0.1MF	50V	MYLAR	
	C769	QCF21HP-222	2200PF	5 V	CERAMIC	C
	C770	QCF21HP-222	2200PF	5.V	CERAMIC	C
	C773	QFN81HK-223	0.022MF	50V	MYLAR	C
	C774	QFN81HK-223	0.022MF	50V	MYLAR	C
	C801	EEW5608-878E	8700MF		ELECTRO	
	C802	EEW5608-878E	8700MF		ELECTRO	
	C803	QETB1HM-476	47MF	50V	ELECTRO	
	C804	QETB1HM-476	47MF	50V	ELECTRO	
	C805	QCS21HJ-101	100PF	50V	CERAMIC	
	C809	QETB1EM-476	47MF	25V	ELECTRO	
	C810	QETB1EM-476	47MF	25V	ELECTRO	
	C811	QETB1EM-106	10MF	25V	ELECTRO	
	C812	QFN82AK-472	4700PF	100V	MYLAR	C
	C813	QETB1JM-107	100MF	63V	ELECTRO	
	C814	QETB1JM-107	100MF	63V	ELECTRO	
	C815	QFH42EK-104	0.1MF	250V	M.MYLAR	
	C816	QCE22HP-103A	0.01MF	500V	CERAMIC	
	C817	QFN82AK-472	4700PF	100V	MYLAR	C
	C818	QFN82AK-104	0.1MF	100V	MYLAR	C
	C819	QETB1HM-105	1MF	50V	ELECTRO	
	C901	QETB1AM-227	220MF	10V	ELECTRO	
	C902	QETB1CM-226	22MF	16V	ELECTRO	
	C903	QETB1HM-475	4.7MF	50V	ELECTRO	
	C904	QETB1HM-226	22MF	50V	ELECTRO	
	C905	QETB1HM-105	1MF	50V	ELECTRO	

△ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION			AREA
	R701	QRD167J-222	2.2K	1/6W	CARBON	
	R702	QRD167J-222	2.2K	1/6W	CARBON	
	R703	QRD167J-104	100K	1/6W	CARBON	
	R704	QRD167J-104	100K	1/6W	CARBON	
	R705	QRD167J-202	2K	1/6W	CARBON	
	R706	QRD167J-202	2K	1/6W	CARBON	
	R707	QRD167J-202	2K	1/6W	CARBON	
	R708	QRD167J-202	2K	1/6W	CARBON	
	R709	QRD167J-103	10K	1/6W	CARBON	
	R710	QRD167J-103	10K	1/6W	CARBON	
	R711	QRD167J-101	100	1/6W	CARBON	
	R712	QRD167J-101	100	1/6W	CARBON	
⚠	R713	QRD14CJ-102S	1K	1/4W	UNF.CARBON	
⚠	R714	QRD14CJ-102S	1K	1/4W	UNF.CARBON	
	R715	QRD167J-163	16K	1/6W	CARBON	
	R716	QRD167J-163	16K	1/6W	CARBON	
	R717	QRD167J-823	82K	1/6W	CARBON	
	R718	QRD167J-823	82K	1/6W	CARBON	
⚠	R719	QRD14CJ-121S	120	1/4W	UNF.CARBON	
⚠	R720	QRD14CJ-121S	120	1/4W	UNF.CARBON	
⚠	R721	QRG012J-103AM	10K	1W	O.M.FILM	
⚠	R722	QRG012J-103AM	10K	1W	O.M.FILM	
	R725	QRD167J-391	390	1/6W	CARBON	
	R726	QRD167J-391	390	1/6W	CARBON	
	R727	QRD167J-152	1.5K	1/6W	CARBON	
	R728	QRD167J-152	1.5K	1/6W	CARBON	
	R729	QRD167J-333	33K	1/6W	CARBON	
	R730	QRD167J-333	33K	1/6W	CARBON	
	R731	QRD167J-391	390	1/6W	CARBON	
	R732	QRD167J-391	390	1/6W	CARBON	
	R733	QRD167J-152	1.5K	1/6W	CARBON	
	R734	QRD167J-152	1.5K	1/6W	CARBON	
⚠	R735	QRG01CJ-392A	3.9K	1W	O.M.FILM	
⚠	R741	QRG01CJ-331A	330	1W	O.M.FILM	
⚠	R742	QRG01CJ-331A	330	1W	O.M.FILM	
	R743	QRD167J-104	100K	1/6W	CARBON	
	R744	QRD167J-104	100K	1/6W	CARBON	
⚠	R745	QRZ0077-4R7	4.7	1/4W	FUSIBLE	C
⚠	R746	QRZ0077-4R7	4.7	1/4W	FUSIBLE	C
⚠	R747	QRZ0077-4R7	4.7	1/4W	FUSIBLE	C
⚠	R748	QRZ0077-4R7	4.7	1/4W	FUSIBLE	C
	R751	QVPE601-501	500	0.15W	VARIABLE	
	R752	QVPE601-501	500	0.15W	VARIABLE	
	R753	QRD167J-101	100	1/6W	CARBON	
	R754	QRD167J-101	100	1/6W	CARBON	
	R755	ERT-D2WFL351S	350	1/4W	THERMISTOR	
	R756	ERT-D2WFL351S	350	1/4W	THERMISTOR	
	R757	QRD167J-471	470	1/6W	CARBON	
	R758	QRD167J-471	470	1/6W	CARBON	
	R759	QRD167J-391	390	1/6W	CARBON	
	R760	QRD167J-391	390	1/6W	CARBON	
	R761	ERT-D2WHL202S	2K	1/4W	THERMISTOR	
	R762	ERT-D2WHL202S	2K	1/4W	THERMISTOR	
⚠	R765	QRZ0077-272	2.7K	1/4W	FUSIBLE	
⚠	R766	QRZ0077-272	2.7K	1/4W	FUSIBLE	
⚠	R767	QRZ0077-471	470	1/4W	FUSIBLE	
⚠	R768	QRZ0077-471	470	1/4W	FUSIBLE	
⚠	R769	QRZ0077-100	10	1/4W	FUSIBLE	
⚠	R770	QRZ0077-100	10	1/4W	FUSIBLE	
⚠	R771	QRZ0077-100	10	1/4W	FUSIBLE	
⚠	R772	QRZ0077-100	10	1/4W	FUSIBLE	
⚠	R773	ERF032K-R22	0.22	3W	CEMENT	
⚠	R774	ERF032K-R22	0.22	3W	CEMENT	
⚠	R775	QRG01CJ-100A	10	1W	O.M.FILM	
⚠	R776	QRG01CJ-100A	10	1W	O.M.FILM	
⚠	R777	QRD125J-330	33	1/2W	UNF.CARBON	A
⚠	R777	QRD125J-330	33	1/2W	UNF.CARBON	B
⚠	R777	QRD125J-101	100	1/2W	UNF.CARBON	C
⚠	R777	QRD125J-330	33	1/2W	UNF.CARBON	DBS
⚠	R778	QRD125J-330	33	1/2W	UNF.CARBON	A
⚠	R778	QRD125J-330	33	1/2W	UNF.CARBON	B
⚠	R778	QRD125J-101	100	1/2W	UNF.CARBON	C
⚠	R778	QRD125J-330	33	1/2W	UNF.CARBON	DBS
	R791	QRD167J-621	620	1/6W	CARBON	
	R792	QRD167J-621	620	1/6W	CARBON	
	R793	QRD167J-621	620	1/6W	CARBON	
	R794	QRD167J-621	620	1/6W	CARBON	
	R795	QRD167J-181	180	1/6W	CARBON	
	R796	QRD167J-181	180	1/6W	CARBON	
	R797	QRD167J-181	180	1/6W	CARBON	
	R798	QRD167J-181	180	1/6W	CARBON	
⚠	R801	QRZ0077-100	10	1/4W	FUSIBLE	
⚠	R802	QRZ0077-330	33	1/4W	FUSIBLE	
	R803	QRD167J-223	22K	1/6W	CARBON	
	R804	QRD167J-203	20K	1/6W	CARBON	
⚠	R811	QRZ0077-330	33	1/4W	FUSIBLE	
⚠	R812	QRZ0077-330	33	1/4W	FUSIBLE	
	R813	QRD167J-123	12K	1/6W	CARBON	
	R814	QRD167J-563	56K	1/6W	CARBON	
	R815	QRD167J-221	220	1/6W	CARBON	
	R816	QRD167J-393	39K	1/6W	CARBON	
	R901	QRD167J-272	2.7K	1/6W	CARBON	
	R902	QRD167J-272	2.7K	1/6W	CARBON	
	R903	QRD167J-153	15K	1/6W	CARBON	
	R904	QRD167J-153	15K	1/6W	CARBON	

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION			AREA
	R905	QRD167J-104	100K	1/6W	CARBON	
	R906	QRD167J-823	82K	1/6W	CARBON	
	R907	QRD167J-223	22K	1/6W	CARBON	
	R908	QRD167J-223	22K	1/6W	CARBON	
	R909	QRD167J-103	10K	1/6W	CARBON	
	R911	QRD167J-473	47K	1/6W	CARBON	
	R916	QRD167J-103	10K	1/6W	CARBON	
	R917	QRD167J-103	10K	1/6W	CARBON	
	R918	QRD167J-224	220K	1/6W	CARBON	
	R919	QRD167J-332	3.3K	1/6W	CARBON	
	R920	QRD167J-273	27K	1/6W	CARBON	
	R921	QRD167J-153	15K	1/6W	CARBON	
	R923	QRD167J-220	22	1/6W	CARBON	
⚠	R924	QRG02CJ-122A	1.2K	2W	O.M.FILM	
⚠	R925	QRZ0077-100	10	1/4W	FUSIBLE	

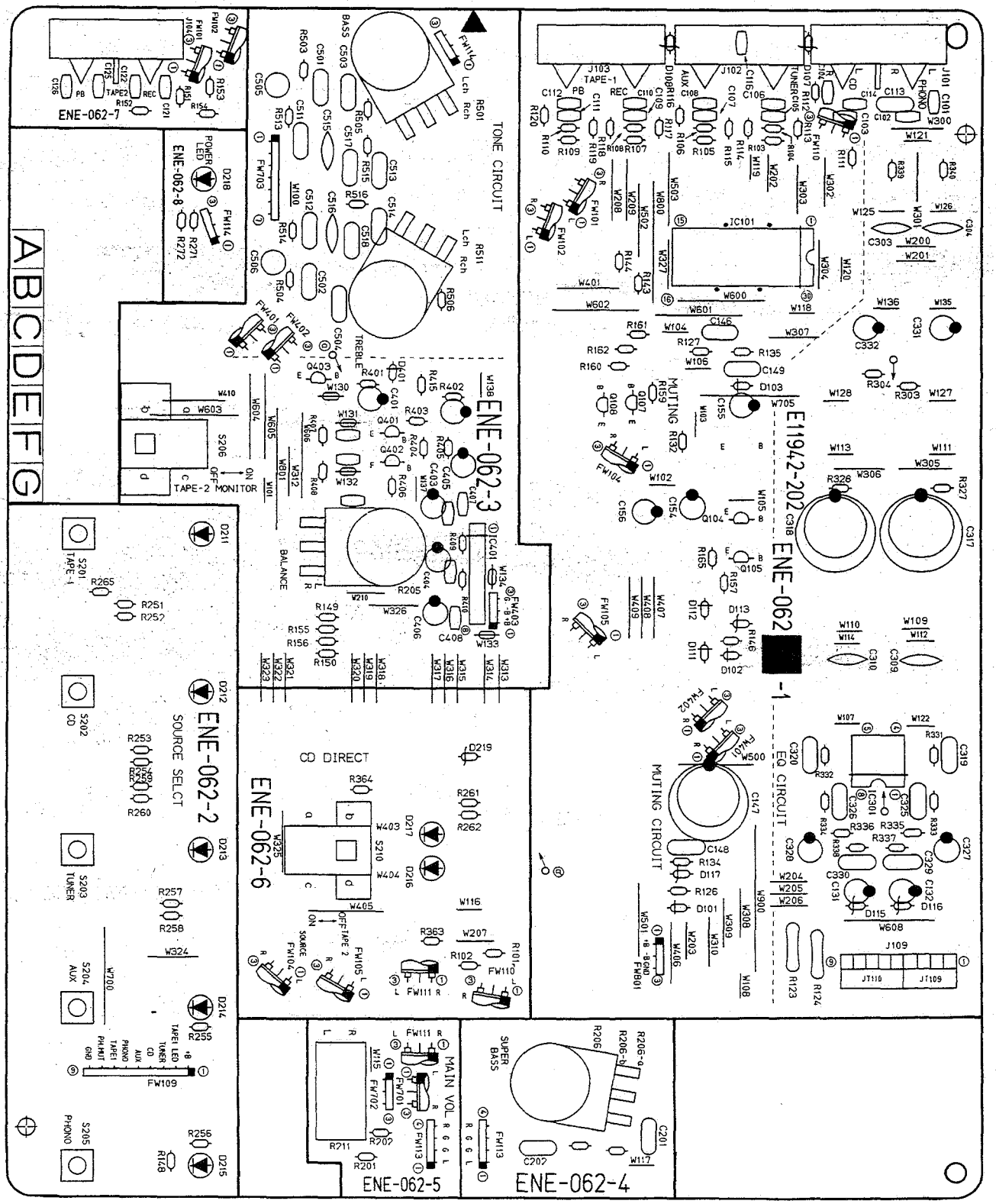
Others

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
		E300209-029	HEAT SINK	
		E305804-001	CIRCUIT BOARD HOLDER	
		E305805-001	CIRCUIT BOARD HOLDER	
		E33754-001	TIE BAND	
		E70945-H25	HEAT SINK	
		E73525-003	SCREW	
		SBSB3008CC	SCREW	
		EMG7331-002	FUSE CLIP	A
		EMG7331-002U	FUSE CLIP	A
		E11943-102	CIRCUIT BOARD	A
		E74266-002	SPECIAL SCREW	A
		GBSB3008CC	SCREW	A
		EMG7331-002	FUSE CLIP	B
		EMG7331-002U	FUSE CLIP	B
		E11943-102	CIRCUIT BOARD	B
		E65508-002	TAB	B
		E74266-002	SPECIAL SCREW	B
		GBSB3008CC	SCREW	B
		EMG7331-002	FUSE CLIP	C
		EMG7331-002U	FUSE CLIP	C
		EWT011-078	TERMINAL WIRE	C
		EWT011-112	TERMINAL WIRE	C
		E11943-102	CIRCUIT BOARD	C
		E65508-002	TAB	C
		E74266-002	SPECIAL SCREW	C
		GBSB3008CC	SCREW	C
		EMG7331-002	FUSE CLIP	DBS
		EMG7331-002U	FUSE CLIP	DBS
		E11943-102BS	CIRCUIT BOARD	DBS
		E65508-002	TAB	DBS
		E74266-002	SPECIAL SCREW	DBS
		GBSB3008CC	SCREW	DBS
	F001	E67132-T2R0	FUSE LABEL	A
	F002	E67132-T4R0	FUSE LABEL	A
	F003	E67132-T2R0	FUSE LABEL	B
	F003	E67132-T2R0	FUSE LABEL	C
	F003	E67132-T2R0	FUSE LABEL	DBS
	J701	EMV7122-003	CONNECTOR	
	J702	EMV7122-003	CONNECTOR	
	J751	EMB00TP-801C	SPEAKER TERMINAL	
	J752	EMB00TP-801C	SPEAKER TERMINAL	
	J753	QMS6A40-021	HEADPHONE JACK	
	J801	EMV7122-003	CONNECTOR	
	J803	EMV7122-003	CONNECTOR	
	S701	QST4231-E04	PUSH SWITCH	
	S702	QST4231-E04	PUSH SWITCH	
	EP001	E70859-001	EARTH PLATE	C
	EP003	E70859-001	EARTH PLATE	
	FW704	EWR33B-08SST	FLAT WIRE	
	JT703	EMV7122-003	CONNECTOR	
	JT704	EMV7122-004	CONNECTOR	
	RT001	E67764-202	WRAPPING TERMINAL	A
	RT002	E67764-202	WRAPPING TERMINAL	A
	RT003	E67764-203	WRAPPING TERMINAL	B
	RT003	E67764-203	WRAPPING TERMINAL	C
	RT003	E67764-203	WRAPPING TERMINAL	DBS
	RT004	E67764-202	WRAPPING TERMINAL	B
	RT004	E67764-202	WRAPPING TERMINAL	C
	RT004	E67764-202	WRAPPING TERMINAL	DBS
	RT801	E67764-103	WRAPPING TERMINAL	
	RY901	ESK5D24-218	RELAY	

⚠ : SAFETY PARTS

■ENE-062☐ Source Select PC Board Ass'y

Note : ENE-062☐ varies according to the areas employed. See note (1) when placing an order.



Note (1)

PC Board Ass'y	Designated Areas
ENE-062 [A]	Other Countries
ENE-062 [B]	Australia,the U.K. Continental Europe
ENE-062 [C]	West Germany

Transistors

⚠	ITEM	PART NUMBER	DESCRIPTION		AREA
	Q104	DTC144ES	SILICON	ROHM	
	Q105	DTA144ES	SILICON	ROHM	
	Q107	2SC3792-AA	SILICON		
	Q108	2SC3792-AA	SILICON		
	Q401	2SC3792-AA	SILICON		
	Q402	2SC3792-AA	SILICON		
	Q403	DTA144ES	SILICON	ROHM	

I. C. S.

⚠	ITEM	PART NUMBER	DESCRIPTION		AREA
	IC101	LC7818	I.C.	SANYO	
	IC301	NJM4558D-D	I.C.	DAINICHI	
	IC401	BA15218N	I.C.	ROHM	

Diodes

⚠	ITEM	PART NUMBER	DESCRIPTION		AREA
	D101	1SS133	SILICON	ROHM	
	D102	1SS133	SILICON	ROHM	
	D103	1SS133	SILICON	ROHM	
	D107	MTZ3.3JB	ZENER	ROHM	
	D108	MTZ3.3JB	ZENER	ROHM	
	D111	1SS133	SILICON	ROHM	
	D112	1SS133	SILICON	ROHM	
	D113	MTZ5.6JC	ZENER	ROHM	
	D115	MTZ13JC	ZENER	ROHM	
	D116	MTZ13JC	ZENER	ROHM	
	D117	MTZ6.8JC	ZENER	ROHM	
	D211	SLR-331VR50F070	L.E.D.	ROHM	
	D212	SLR-331DU50F070	L.E.D.	ROHM	
	D213	SLR-331DU50F070	L.E.D.	ROHM	
	D214	SLR-331DU50F070	L.E.D.	ROHM	
	D215	SLR-331DU50F070	L.E.D.	ROHM	
	D216	SLR-34YC50F165	L.E.D.	ROHM	
	D217	SLR-34YC50F165	L.E.D.	ROHM	
	D218	SLR-331DU50F070	L.E.D.	ROHM	
	D219	MTZ5.1JC	ZENER	ROHM	
	D401	1SS133	SILICON	ROHM	

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION			AREA
	C101	QCBB1HK-221	220PF	50V	CERAMIC	
	C102	QCBB1HK-221	220PF	50V	CERAMIC	
	C103	QCBB1HK-471	470PF	50V	CERAMIC	C
	C104	QCBB1HK-471	470PF	50V	CERAMIC	C
	C105	QCBB1HK-221	220PF	50V	CERAMIC	C
	C106	QCBB1HK-221	220PF	50V	CERAMIC	C
	C107	QCBB1HK-221	220PF	50V	CERAMIC	C
	C108	QCBB1HK-221	220PF	50V	CERAMIC	C
	C109	QCBB1HK-221	220PF	50V	CERAMIC	C
	C110	QCBB1HK-221	220PF	50V	CERAMIC	C
	C111	QCBB1HK-221	220PF	50V	CERAMIC	C
	C112	QCBB1HK-221	220PF	50V	CERAMIC	C
	C113	QFN81HJ-103	0.01MF	50V	MYLAR	
	C114	QCH81EZ-223	0.022MF	25V	CERAMIC	
	C121	QCBB1HK-221	220PF	50V	CERAMIC	C
	C122	QCBB1HK-221	220PF	50V	CERAMIC	C
	C125	QCBB1HK-221	220PF	50V	CERAMIC	C
	C126	QCBB1HK-221	220PF	50V	CERAMIC	C
	C131	QETB1EM-107	100MF	25V	ELECTRO	
	C132	QETB1EM-107	100MF	25V	ELECTRO	

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION			AREA
	C146	QFN81HJ-562	5600PF	50V	MYLAR	
	C147	QETB0JM-228	2200MF	6.3V	ELECTRO	
	C148	QFN81HJ-562	5600PF	50V	MYLAR	
	C149	QFN81HK-473	0.047MF	50V	MYLAR	
	C154	QETB1CM-107	100MF	16V	ELECTRO	
	C155	QETB1HM-474	0.47MF	50V	ELECTRO	
	C156	QETB1HM-475	4.7MF	50V	ELECTRO	
	C201	QFV81HJ-104	0.1MF	50V	T.FILM	
	C202	QFV81HJ-104	0.1MF	50V	T.FILM	
	C303	QCS21HJ-560	56PF	50V	CERAMIC	A
	C303	QCS21HJ-560	56PF	50V	CERAMIC	B
	C303	QCS21HJ-331	330PF	50V	CERAMIC	C
	C304	QCS21HJ-560	56PF	50V	CERAMIC	A
	C304	QCS21HJ-560	56PF	50V	CERAMIC	B
	C304	QCS21HJ-331	330PF	50V	CERAMIC	C
	C309	QCS21HJ-101	100PF	50V	CERAMIC	
	C310	QCS21HJ-101	100PF	50V	CERAMIC	
	C317	QETB1AM-107	100MF	10V	ELECTRO	
	C318	QETB1AM-107	100MF	10V	ELECTRO	
	C319	QFN81HJ-182	1800PF	50V	MYLAR	
	C320	QFN81HJ-182	1800PF	50	MYLAR	
	C325	QFN81HJ-682	6800PF	50	MYLAR	
	C326	QFN81HJ-682	6800PF	50V	MYLAR	
	C327	EETB2AM-106	10MF	100V	ELECTRO	
	C328	EETB2AM-106	10MF	100V	ELECTRO	
	C329	QFN81HJ-222	2200PF	50V	MYLAR	C
	C330	QFN81HJ-222	2200PF	50V	MYLAR	C
	C331	EETB2AM-106	10MF	100V	ELECTRO	
	C332	EETB2AM-106	10MF	100V	ELECTRO	
	C401	QEK51HM-474G	0.47MF	50V	ELECTRO	
	C403	QEK51EM-475G	4.7MF	25V	ELECTRO	
	C404	QEK51EM-475G	4.7MF	25V	ELECTRO	
	C405	QEK51EM-475G	4.7MF	25V	ELECTRO	
	C406	QEK51EM-475G	4.7MF	25V	ELECTRO	
	C407	QCBB1HK-101	100PF	50V	CERAMIC	
	C408	QCBB1HK-101	100PF	50V	CERAMIC	
	C501	QFN81HK-153	0.015MF	50V	MYLAR	
	C502	QFN81HK-153	0.015MF	50V	MYLAR	
	C503	QFN81HK-823	0.082MF	50V	MYLAR	
	C504	QFN81HK-823	0.082MF	50V	MYLAR	
	C505	QEN51HM-475	4.7MF	50V	NON POLE	
	C506	QEN51HM-475	4.7MF	50V	NON POLE	
	C511	QFN81HK-332	3300PF	50V	MYLAR	
	C512	QFN81HK-332	3300PF	50V	MYLAR	
	C513	QFN81HK-183	0.018MF	50V	MYLAR	
	C514	QFN81HK-183	0.018MF	50V	MYLAR	
	C515	QCS21HJ-221	220PF	50V	CERAMIC	
	C516	QCS21HJ-221	220PF	50V	CERAMIC	
	C517	QFN81HK-122	1200PF	50V	MYLAR	
	C518	QFN81HK-122	1200PF	50V	MYLAR	

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION			AREA
	R101	QRD167J-105	1M	1/6W	CARBON	
	R102	QRD167J-105	1M	1/6W	CARBON	
	R103	QRD167J-105	1M	1/6W	CARBON	
	R104	QRD167J-105	1M	1/6W	CARBON	
	R105	QRD167J-105	1M	1/6W	CARBON	
	R106	QRD167J-105	1M	1/6W	CARBON	
	R107	QRD167J-105	1M	1/6W	CARBON	
	R108	QRD167J-105	1M	1/6W	CARBON	
	R109	QRD167J-105	1M	1/6W	CARBON	
	R110	QRD167J-105	1M	1/6W	CARBON	
	R111	QRD167J-471	470	1/6W	CARBON	
	R112	QRD167J-471	470	1/6W	CARBON	
	R113	QRD167J-471	470	1/6W	CARBON	
	R114	QRD167J-471	470	1/6W	CARBON	
	R115	QRD167J-471	470	1/6W	CARBON	
	R116	QRD167J-471	470	1/6W	CARBON	
	R117	QRD167J-471	470	1/6W	CARBON	
	R118	QRD167J-471	470	1/6W	CARBON	
	R119	QRD167J-471	470	1/6W	CARBON	
	R120	QRD167J-471	470	1/6W	CARBON	
⚠	R123	QRZ0077-101	100	1/4W	FUSIBLE	
⚠	R124	QRZ0077-101	100	1/4W	FUSIBLE	
	R126	QRD167J-104	100K	1/6W	CARBON	
	R127	QRD167J-104	100K	1/6W	CARBON	
	R132	QRD167J-103	10K	1/6W	CARBON	
	R134	QRD167J-103	10K	1/6W	CARBON	
	R135	QRD167J-474	470K	1/6W	CARBON	
	R143	QRD167J-102	1K	1/6W	CARBON	
	R144	QRD167J-102	1K	1/6W	CARBON	
	R146	QRD167J-122	1.2K	1/6W	CARBON	
	R149	QRD167J-471	470	1/6W	CARBON	
	R150	QRD167J-471	470	1/6W	CARBON	
	R151	QRD167J-105	1M	1/6W	CARBON	
	R152	QRD167J-105	1M	1/6W	CARBON	
	R153	QRD167J-471	470	1/6W	CARBON	
	R154	QRD167J-471	470	1/6W	CARBON	
	R155	QRD167J-105	1M	1/6W	CARBON	
	R156	QRD167J-105	1M	1/6W	CARBON	
	R157	QRD167J-102	1K	1/6W	CARBON	
	R159	QRD167J-333	33K	1/6W	CARBON	

⚠ : SAFETY PARTS

Resistors

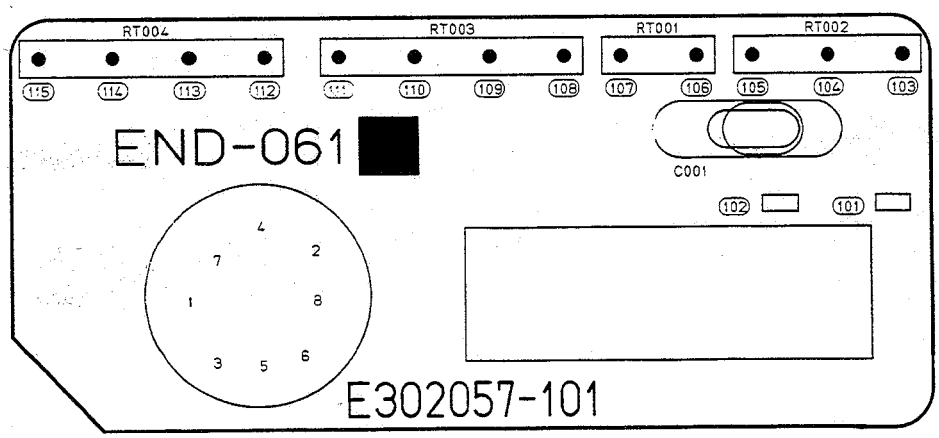
⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	R160	QRD167J-333	33K 1/6W CARBON	
	R161	QRD167J-105	1M 1/6W CARBON	
	R162	QRD167J-105	1M 1/6W CARBON	
	R201	QRD167J-103	10K 1/6W CARBON	
	R202	QRD167J-103	10K 1/6W CARBON	
	R205	QVDB87M-EF5B	250K VARIABLE	
	R206	QVDB87A-E15B	100K VARIABLE	
	R211	QVD8A7B-AF5VA	250K VARIABLE	
	R251	QRD167J-122	1.2K 1/6W CARBON	
	R252	QRD167J-122	1.2K 1/6W CARBON	
	R253	QRD167J-122	1.2K 1/6W CARBON	
	R254	QRD167J-122	1.2K 1/6W CARBON	
	R255	QRD167J-122	1.2K 1/6W CARBON	
	R256	QRD167J-122	1.2K 1/6W CARBON	
	R257	QRD167J-122	1.2K 1/6W CARBON	
	R258	QRD167J-122	1.2K 1/6W CARBON	
	R259	QRD167J-122	1.2K 1/6W CARBON	
	R260	QRD167J-122	1.2K 1/6W CARBON	
	R261	QRD167J-122	1.2K 1/6W CARBON	
	R262	QRD167J-112	1.1K 1/6W CARBON	
	R265	QRD167J-104	100K 1/6W CARBON	
	R271	QRD167J-132	1.3K 1/6W CARBON	
	R272	QRD167J-152	1.5K 1/6W CARBON	
	R303	QRD167J-473	47K 1/6W CARBON	
	R304	QRD167J-473	47K 1/6W CARBON	
	R327	QRD167J-561	560 1/6W CARBON	
	R328	QRD167J-561	560 1/6W CARBON	
	R331	QRD167J-393	39K 1/6W CARBON	
	R332	QRD167J-393	39K 1/6W CARBON	
	R333	QRD167J-474	470K 1/6W CARBON	
	R334	QRD167J-474	470K 1/6W CARBON	
	R335	QRD167J-471	470 1/6W CARBON	
	R336	QRD167J-471	470 1/6W CARBON	
	R337	QRD167J-104	100K 1/6W CARBON	
	R338	QRD167J-104	100K 1/6W CARBON	
	R339	QRD167J-222	2.2K 1/6W CARBON	
	R340	QRD167J-222	2.2K 1/6W CARBON	
	R363	QRD167J-471	470 1/6W CARBON	
	R364	QRD167J-471	470 1/6W CARBON	
	R401	QRD167J-102	1K 1/6W CARBON	
	R402	QRD167J-474	470K 1/6W CARBON	
	R403	QRD167J-223	22K 1/6W CARBON	
	R404	QRD167J-223	22K 1/6W CARBON	
	R405	QRD167J-102	1K 1/6W CARBON	
	R406	QRD167J-102	1K 1/6W CARBON	
	R407	QRD167J-104	100K 1/6W CARBON	
	R408	QRD167J-104	100K 1/6W CARBON	
	R409	QRD167J-105	1M 1/6W CARBON	
	R410	QRD167J-105	1M 1/6W CARBON	
	R501	QVDB87C-E15B	100K VARIABLE	
	R503	QRD167J-203	20K 1/6W CARBON	
	R504	QRD167J-203	20K 1/6W CARBON	
	R505	QRD167J-362	3.6K 1/6W CARBON	
	R506	QRD167J-362	3.6K 1/6W CARBON	
	R511	QVDB87C-E15B	100K VARIABLE	
	R513	QRD167J-472	4.7K 1/6W CARBON	
	R514	QRD167J-472	4.7K 1/6W CARBON	
	R515	QRD167J-821	820 1/6W CARBON	
	R516	QRD167J-821	820 1/6W CARBON	

Others

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
		E11942-202	CIRCUIT BOARD	
		E305983-002	LED HOLDER	
		E33754-001	TIE BAND	
	J101	EMN00TV-405A	4P PIN JACK	
	J102	EMN00TV-402A	4P PIN JACK	
	J103	EMN00TV-402A	4P PIN JACK	
	J104	EMN00TV-402A	4P PIN JACK	
	S201	ESP0001-018	TACT SWITCH	
	S202	ESP0001-018	TACT SWITCH	
	S203	ESP0001-018	TACT SWITCH	
	S204	ESP0001-018	TACT SWITCH	
	S205	ESP0001-018	TACT SWITCH	
	S206	QSTL101-E03	PUSH SWITCH	
	S210	QSTL101-E05	PUSH SWITCH	
	FW101	EWR23C-20NN	FLAT WIRE	
	FW102	EWR23C-20NN	FLAT WIRE	
	FW104	EWR23C-30NN	FLAT WIRE	
	FW105	EWR23C-25NN	FLAT WIRE	
	FW109	EWR39B-20KST	FLAT WIRE	
	FW110	EWR23C-35NN	FLAT WIRE	
	FW111	EWR23C-16NN	FLAT WIRE	
	FW113	EWR34B-20SST	FLAT WIRE	
	FW114	EWR33B-13SST	FLAT WIRE	
	FW401	EWR23C-40NN	FLAT WIRE	
	FW402	EWR23C-40NN	FLAT WIRE	
	FW403	EWR33B-30LST	FLAT WIRE	
	FW701	EWR23C-10JN	FLAT WIRE	
	FW702	EWR33B-13KST	FLAT WIRE	
	FW703	EWR37B-35KST	FLAT WIRE	
	FW801	EWR33B-10KST	FLAT WIRE	
	JT109	EMV7122-004	CONNECTOR	
	JT110	EMV7122-005	CONNECTOR	

⚠ : SAFETY PARTS

■ END-061 [B] Voltage Selector PC Board Ass'y (for Other Countries Only)



Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
⚠	C001	QCZ9018-103	0.01MF CERAMIC	

Others

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
		E302057-101	CIRCUIT BOARD	
		E65508-002	TAB	
		E67764-302	WRAPPING TERMINAL	
		E67764-303	WRAPPING TERMINAL	
		E67764-304	WRAPPING TERMINAL	
⚠		QMC0637-004	AC OUTLET	
⚠		QSR0085-018	VOLTAGE SELECTOR	

⚠ : SAFETY PARTS

Accessories List

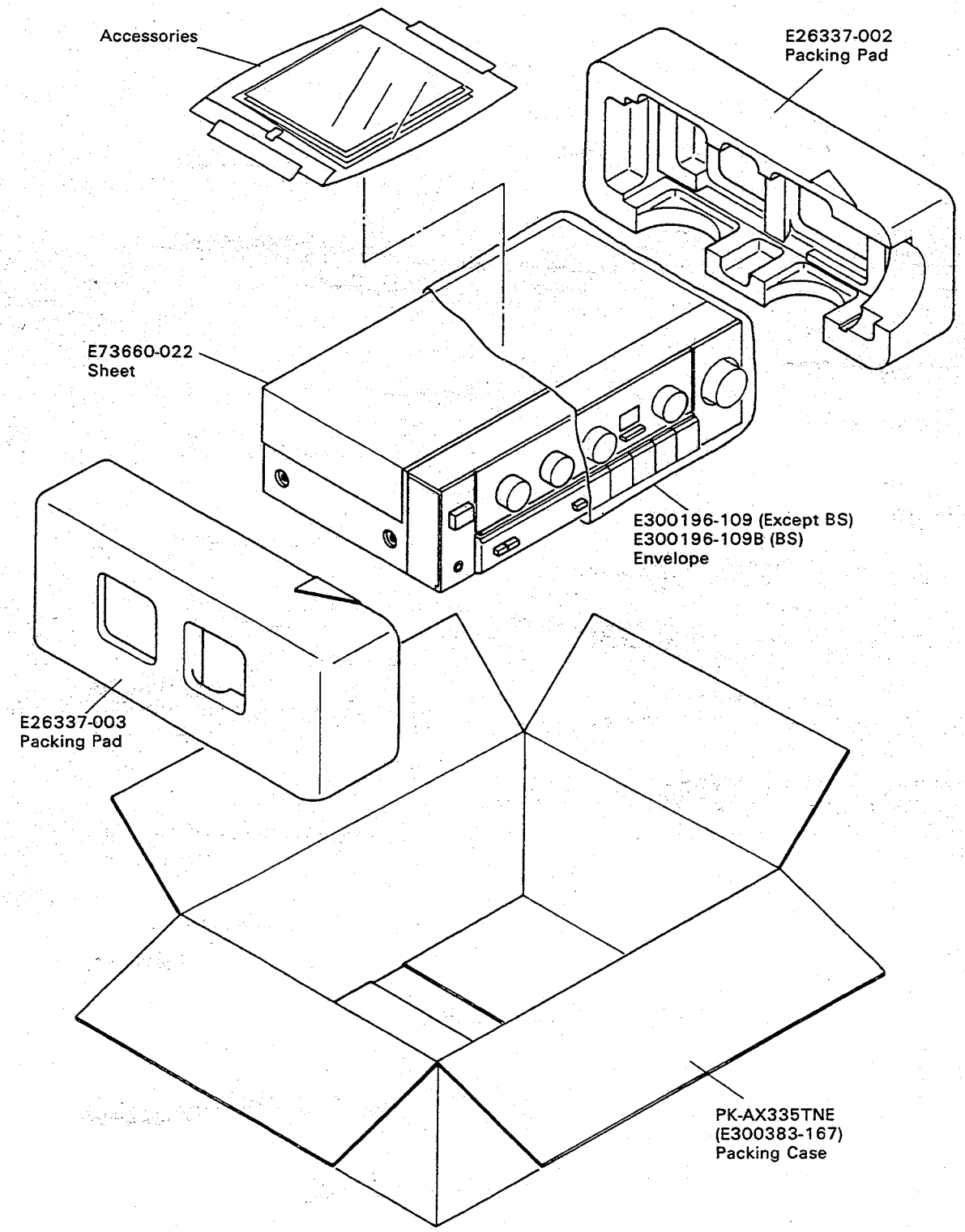
⚠	Part Number	Part Name	Q'ty	Description	Areas
	E30580-1601B	Instruction Book	1		Except BS
	E30580-1601BBS	Instruction Book	1		BS
	BT20029C	Warranty Card	1		A
	BT-20117	Warranty Card	1		G
	BT20060	Warranty Card	1		BS
	BT-20119	Audio Warranty	1	for New Zealand	A
	BT20066A	EEC Agency	1		BS
	E35497-019	Caution Sheet	1	220V	U
⚠	E04056	Siemens Plug	1		U
	QZL1008-001	FTZ Information Sheet	1		G
	E43486-340A	Safety Sheet	1		BS
	E41202-2	Envelope	1		Except BS
	E41202-2B	Envelope	1		BS

⚠ Safety Parts

The Marks for Designated Areas

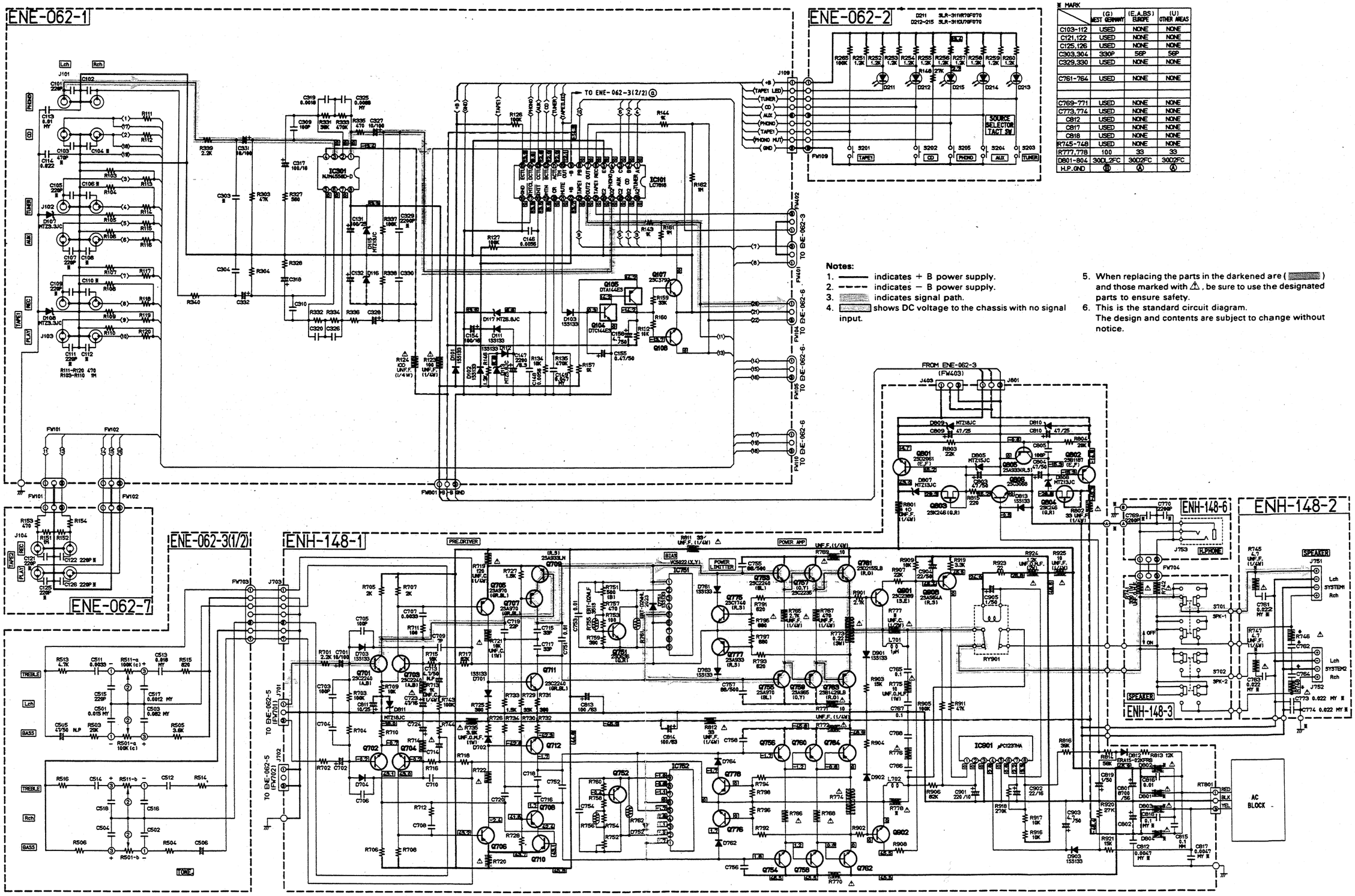
A·····Australia
E,EF·····Continental Europe
BS·····the U.K.
G·····West Germany
U·····Other Countries
No mark indicates all areas.

Packing Materials and Part Numbers



The Marks for Designated Areas	
A·····Australia	G·····West Germany
E,EF·····Continental Europe	U·····Other Countries
BS·····the U.K.	**No mark indicates all areas.**

Schematic Diagrams

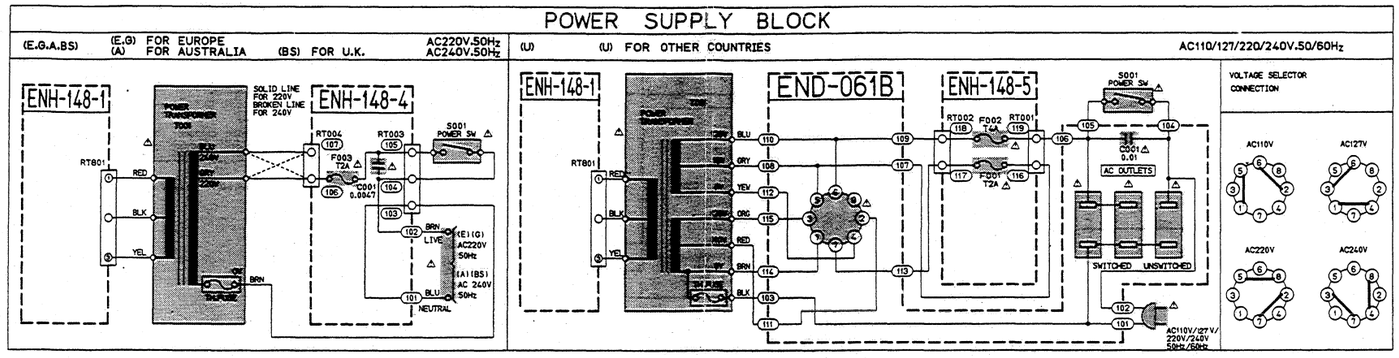


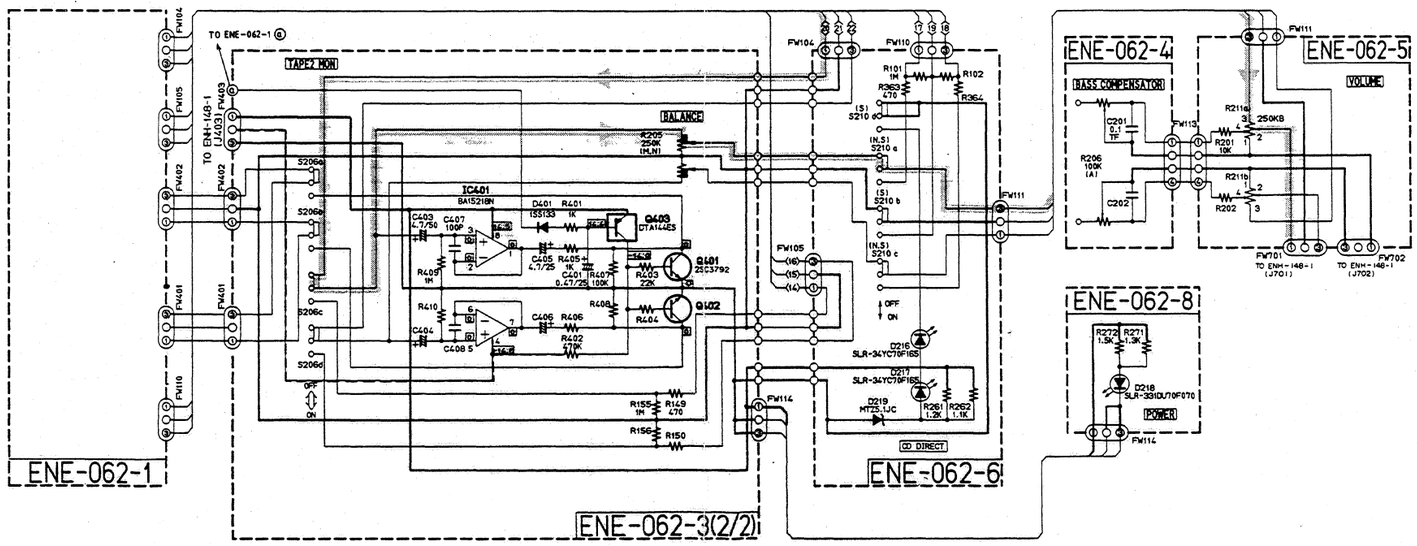
※ MARK	(G) WEST GERMANY	(E,A,BS) EUROPE	(U) OTHER AREAS
C103-112	USED	NONE	NONE
C121,122	USED	NONE	NONE
C125,126	USED	NONE	NONE
C303,304	330P	56P	56P
C329,330	USED	NONE	NONE
C761-764	USED	NONE	NONE
C769-771	USED	NONE	NONE
C773,774	USED	NONE	NONE
C812	USED	NONE	NONE
C817	USED	NONE	NONE
C818	USED	NONE	NONE
R745-748	USED	NONE	NONE
R777,778	100	33	33
D801-804	30DL2FC	30D2FC	30D2FC
H.P.GND	Ⓑ	Ⓐ	Ⓐ

Notes:

1. ——— indicates + B power supply.
2. - - - - indicates − B power supply.
3. ▒▒▒ indicates signal path.
4. ▒▒▒ shows DC voltage to the chassis with no signal input.
5. When replacing the parts in the darkened are (▒▒▒) and those marked with ⚠, be sure to use the designated parts to ensure safety.
6. This is the standard circuit diagram. The design and contents are subject to change without notice.

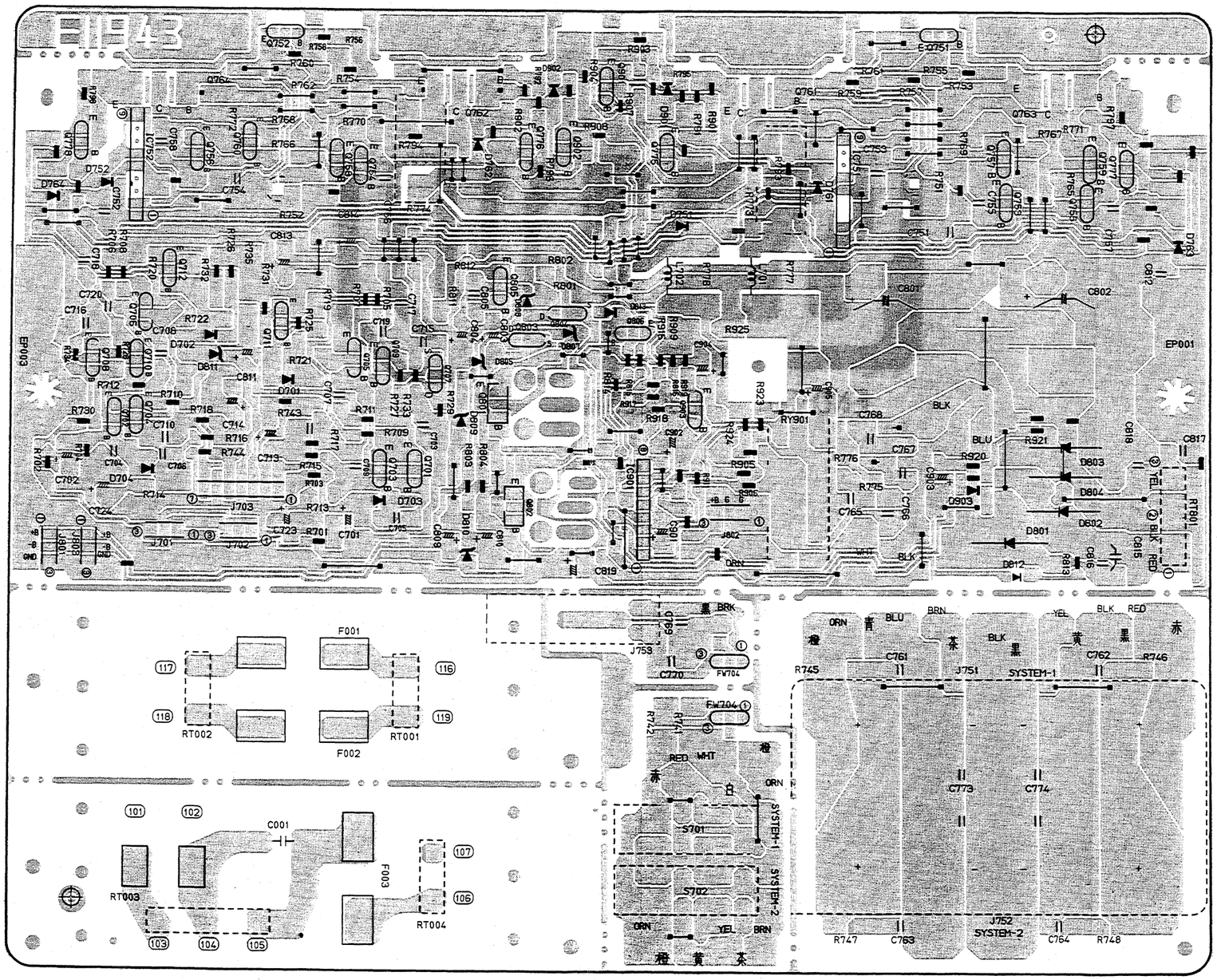
(No. 20 166)


POWER SUPPLY BLOCK
(E.G.A.BS) (E.G) FOR EUROPE (A) FOR AUSTRALIA (BS) FOR U.K. AC220V.50Hz AC240V.50Hz
(U) (U) FOR OTHER COUNTRIES AC110/127/220/240V.50/60Hz
ENH-148-1
ENH-148-4
END-061B
ENH-148-5
VOLTAGE SELECTOR CONNECTION
AC110V
AC127V
AC220V
AC240V
AC OUTLETS
SWITCHED
UNSWITCHED
POWER SW
NEUTRAL
LIVE

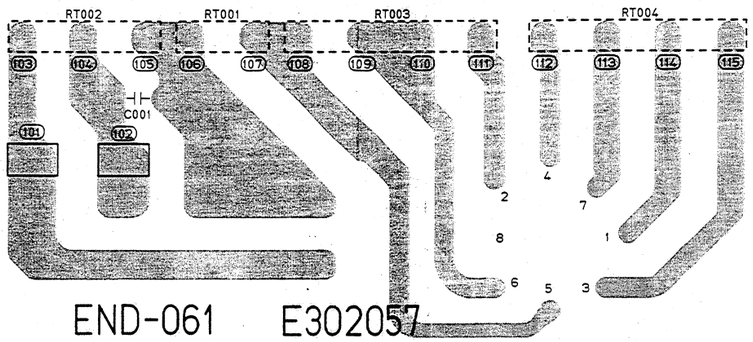

ENE-062-1
ENE-062-3(2/2)
ENE-062-6
ENE-062-4
ENE-062-5
ENE-062-8
TAPE2 MON
BALANCE
BASS COMPENSATOR
VOLUME
POWER
CD DIRECT
TO ENE-062-1 ⑥
TO ENH-148-1 (J4031)
IC401
BA15218N
Q401
2SC3792
Q402
Q403
DTA144ES

Printed Circuit Board

■ **Main Amplifer P.C. Board (ENH-148)**



■ **Voltage Selector P.C. Board (END-061)**



END-061 E302057

■ **Source Select P.C. Board (ENE-062)**